

# ANAND'S ATLAS OF PATHOLOGY

WEB VERSION 1.0





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6. To **Abhinandan** for laying the ground work of this Atlas
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IDENTIFICATION OF SLIDES AND  
SPECIMENS IN PATHOLOGY PRACTICAL  
CLASSES

ONLY THE MOST IMPORTANT POINTS ARE  
PROVIDED FOR EACH SLIDE / SPECIMEN

STANDARD TEXTBOOKS OF PATHOLOGY  
SHOULD BE REFERRED FOR ADDITIONAL  
POINTS



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# SECTION - 1

## HISTOPATHOLOGY SLIDES

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# LIST OF COLOUR PLATES

**MALIGNANT MELANOMA**

**SQUAMOUS CELL CARCINOMA**

**BASAL CELL CARCINOMA**

**PLEOMORPHIC ADENOMA**

**CIRRHOSIS OF LIVER**

**LOBAR PNEUMONIA**

**SEMINOMA TESTIS**

**OSTEOCLASTOMA**



# LIST OF COLOUR PLATES

**RENAL CELL CARCINOMA**

**CHRONIC PYELONEPHRITIS**

**VESICULAR MOLE**

**PAPILLARY CARCINOMA OF THYROID**

**ADENOCARCINOMA OF STOMACH**

**PROLIFERATIVE ENDOMETRIUM**

**SECRETORY ENDOMETRIUM**

**BENIGN PROSTATIC HYPERPLASIA**



# LIST OF COLOUR PLATES

**COLLOID GOITRE**

**LEIOMYOMA OF UTERUS**

**ACUTE APPENDICITIS**

**TUBERCULOUS LYMPHADENITIS**

**RHINOSPOROIDOSIS**

**MADURA MYCOSIS**

**ACTINOMYCOSIS**

**FIBROADENOMA OF BREAST (MIXED)**



# **MALIGNANT MELANOMA**

**USUALLY PRESENTS AS A  
ULCEROPROLIFERATIVE  
PIGMENTED LESION IN THE EXTREMITIES  
AROUND THE 5TH DECADE  
IN A VERY SHORT DURATION  
(LESS THAN A MONTH)**



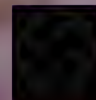


PIGMENTATION

A microscopic image of tissue showing brown pigmentation. A blue arrow points to a specific area of the tissue.



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# **MALIGNANT MELANOMA**

**COMMON NEOPLASM AFFECTING THE SKIN**

**OTHER SITES - ORAL AND ANOGENITAL MUCOSA, OESOPHAGUS, MENINGES AND EYE**

**AETIOPATHOLOGY - EXPOSURE TO SUNLIGHT AND PRESENCE OF PRE EXISTING DYSPLASTIC NEVUS**

**CHANGE IN COLOR AND SIZE OF A PIGMENTED LESION IS A VERY IMPORTANT CLINICAL SIGN**



# **MALIGNANT MELANOMA**

**ENLARGEMENT IN SIZE OF MOLE**

**DEVELOPMENT OF NEW PIGMENTED LESION IN ADULT LIFE**

**MELANOMA INITIALLY GROWS HORIZONTALLY WITHIN EPIDERMAL AND SUPERFICIAL DERMAL LAYERS**

**LATER IT TENDS GROW VERTICALLY INVADING DEEP**

**METASTASIS TO OTHER SITES LIKE LYMPH NODES, LIVER, LUNGS AND BRAIN IS BY HAEMATOGENOUS SPREAD**



# **SQUAMOUS CELL CARCINOMA**

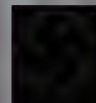
**ULCERO PROLIFERATIVE LESION  
USUALLY OCCURS IN THE EXTREMETIES  
CHARACTERIZED BY CAULIFLOWER  
LIKE GROWTH**



KERATIN PEARLS



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# **SQUAMOUS CELL CARCINOMA**

**SQUAMOUS CELL CARCINOMA DENOTES A  
CANCER IN WHICH THE TUMOUR CELLS  
RESEMBLE STRATIFIED SQUAMOUS  
EPITHELIUM**

**MOST COMMONEST TUMOUR ARISING ON SUN  
EXPOSED SITES IN OLDER PEOPLE**

**PREDISPOSING FACTORS - SUNLIGHT,  
IONISING RADIATION AND OLD BURN SCARS**

**OTHER SITES - CERVIX, OESOPHAGUS, ORAL  
CAVITY, PENIS, VAGINA AND URINARY  
BLADDER**



# **SQUAMOUS CELL CARCINOMA**

**PRESENCE OF HIGHLY ATYPICAL CELLS IN EPIDERMIS**

**USUALLY POLYGONAL SQUAMOUS CELLS  
ARRANGED IN ORDERLY LOBULES WITH LARGE  
ZONES OF KERATINISATION**

**METASTASIS OCCURS TO REGIONAL LYMPH NODES**

**INDIVIDUALS WITH IMMUNOSUPPRESSION ARE  
LIKELY TO DEVELOP SQUAMOUS CELL  
CARCINOMAS**



# **BASAL CELL CARCINOMA - RODENT ULCER**

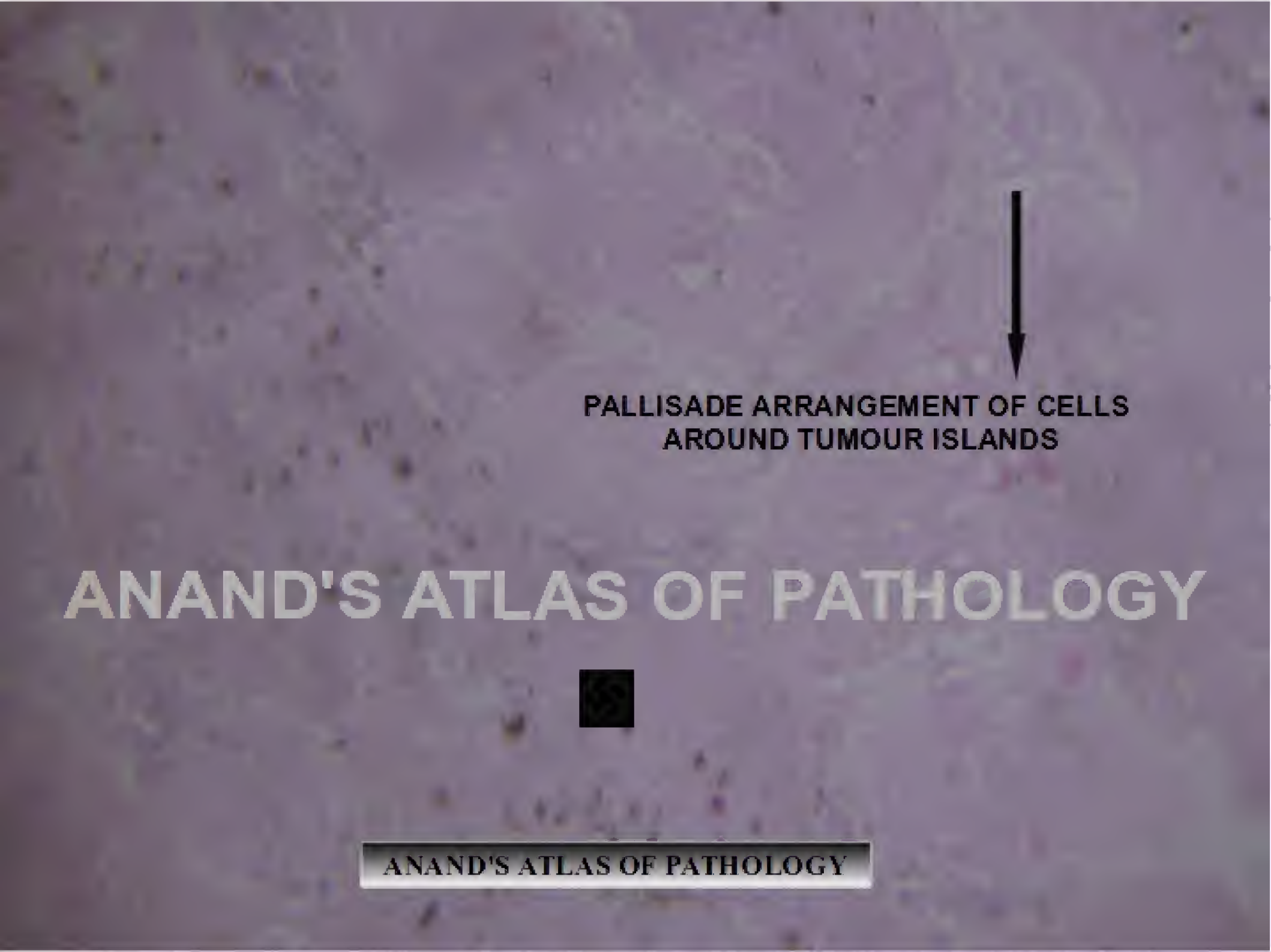
**USUALLY CHARACTERISED BY AN ULCER EITHER IN THE FOREHEAD OR FACE**

**THE ULCER IS FIXED TO THE UNDERLYING TISSUE**

**THE EDGES OF THE ULCER LOOK LIKE  
AS IF THEY HAVE BEEN  
GNAWED BY A RAT**

**HENCE THE NAME RODENT ULCER**

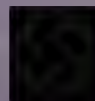




A microscopic image of tissue stained with hematoxylin and eosin (H&E). The image shows a dense population of cells. In the center-right, there is a cluster of cells arranged in a palisade pattern, which is a characteristic feature of certain types of tumors. A black arrow points down to this cluster.

PALLISADE ARRANGEMENT OF CELLS  
AROUND TUMOUR ISLANDS

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# **BASAL CELL CARCINOMA – RODENT ULCER**

**SLOW GROWING TUMOUR**

**OCCURS AT SITES CHRONICALLY EXPOSED  
TO SUNLIGHT**

**TUMOURS PRESENT AS PEARLY PAPULES  
WITH TELANGIECTASIA**

**ADVANCED LESIONS ULCERATE AND  
CAUSES EXTENSIVE LOCAL INVASION**



## **BASAL CELL CARCINOMA - RODENT ULCER**

**TUMOUR CELLS RESEMBLE THOSE IN  
NORMAL BASAL LAYER**

**GROWTH PATTERN CAN BE MULTIFOCAL OR  
NODULAR LESIONS**

**PALLISADING ARRANGEMENT OF CELLS  
AROUND TUMOUR CELL ISLANDS**

**SEPARATION ARTIFACTS ASSIST IN  
DIFFERENTIATING BASAL CELL CARCINOMA  
FROM OTHER TUMOURS**



# **PLEOMORPHIC ADENOMA**

**PLEOMORPHIC ADENOMA USUALLY  
OCCURS AS A PAINLESS  
GROWTH IN THE  
PAROTID REGION**



TUMOUR CELLS EMBEDDED IN  
LOOSE CONNECTIVE  
TISSUE STROMA



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# **PLEOMORPHIC ADENOMA**

**MIXED TUMOUR OF SALIVARY GLANDS**

**IT IS A BENIGN EPITHELIAL NEOPLASM PRODUCING  
GLAND PATTERNS**

**A SLOW GROWING, WELL DEMARCATED,  
ENCAPSULATED LESION**

**COMMONLY AFFECTS PAROTID GLAND**

**CHARACTERISED BY PAINLESS SWELLING AT THE  
ANGLE OF THE JAW**



# **PLEOMORPHIC ADENOMA**

## **HISTOLOGICAL PICTURE - HETEROGENOUS APPEARANCE**

**TUMOUR CELLS FORM DUCTS, ACINI, TUBULES AND STRANDS OF CELLS**

**EPITHELIAL CELLS ARE SMALL AND DARK RANGING FROM CUBOIDAL TO SPINDLE FORMS**

**EPITHELIAL ELEMENTS ARE INTERMINGLED IN LOOSE MYXOID CONNECTIVE TISSUE STROMA**

**SOMETIMES ISLANDS OF CHONDROID OR BONE ARE SEEN**



# **CIRRHOSIS OF LIVER**

**PATIENT USUALLY IS A CHRONIC ALCOHOLIC  
PRESENTING WITH HEMATEMESIS, MALENA  
AND ABDOMINAL DISTENSION**

**LIVER BIOPSY IS DONE**



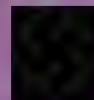
DISRUPTION OF NORMAL ARCHITECTURE OF HEPATOCYTES

BRIDGING FIBROUS SEPTA ARE SEEN



MALLORY BODY

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# **CIRRHOSIS OF LIVER**

**IT IS AN END STAGE OF CHRONIC LIVER DISEASE**

**CHRONIC ALCOHOLISM - FATTY LIVER**

**THERE IS DISRUPTION OF NORMAL ARCHITECTURE OF LIVER**

**BRIDGING FIBROUS SEPTA IN THE FORM OF DELICATE BANDS OR BROAD SCARS REPLACING MULTIPLE ADJACENT LOBULES ARE SEEN (FIBROSIS)**

**PARENCHYMAL NODULES ARE CREATED BY REGENERATION OF ENCIRCLED HEPATOCYTES VARYING IN SIZE ARE SEEN**

**MALLORY BODIES ARE SEEN**



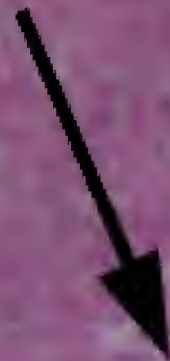
# **LOBAR PNEUMONIA**

**PATIENT USUALLY PRESENTS WITH FEVER,  
MALAISE, COUGH WITH EXPECTORATION  
OF SPUTUM AND SEPTICEMIA IS A  
PRESENTING FEATURE**

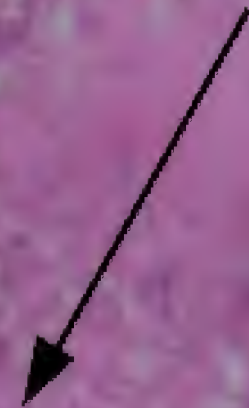
**LUNG BIOPSY IS DONE**

**LOBECTOMY IS DONE IN EXTREME CASES**





**RED  
HEPATISATION**



**GREY  
HEPATISATION**

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# **LOBAR PNEUMONIA**

**IT IS A ACUTE BACTERIAL PNEUMONIA  
USUALLY CAUSED BY STREPTOCOCCUS  
PNEUMONIAE**

**EVOLUTION OF DISEASE IS THROUGH FOUR  
STAGES**

**STAGE OF CONGESTION, RED HEPATISATION,  
GRAY HEPATISATION AND RESOLUTION**



# **LOBAR PNEUMONIA**

**IN STAGE OF RED HEPATISATION, ALVEOLAR SPACES ARE PACKED WITH NEUTROPHILS, RED CELLS AND FIBRIN**

**IN STAGE OF GRAY HEPATISATION, RED CELLS GET LYSED**

**IN STAGE OF RESOLUTION, EXUDATES WITHIN ALVEOLI ARE ENZYMATICALLY DIGESTED AND EITHER UNDERGO RESORPTION OR IS EXPECTORATED**



# **SEMINOMA TESTIS**

**MALE PATIENT USUALLY PRESENTS  
WITH A PAINLESS MASS IN  
THE SCROTUM**

**TESTICULAR BIOPSY IS DONE FOR  
CONFIRMATION OF DIAGNOSIS**

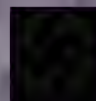
**ORCHIDECTOMY IS DONE**



LYMPHOCYTIC INFILTRATION IS SEEN



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# SEMINOMA TESTIS

**IT IS A GERM CELL TUMOUR**

**CRYPTORCHIDISM IS A COMMONLY ASSOCIATED CAUSE**

**IT IS COMPOSED OF LARGE CELLS WITH DISTINCT CELL BORDERS, CLEAR GLYCOGEN RICH CYTOPLASM**

**PRESENCE OF ROUND NUCLEI WITH CONSPICUOUS NUCLEOLI**

**CELLS ARE ARRANGED IN SMALL LOBULES WITH INTERVENING FIBROUS SEPTA**

**LYMPHOCYTIC INFILTRATION IS SEEN**

**GRANULOMATOUS INFLAMMATORY REACTION CAN BE PRESENT**



# **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**PRESENTS AS A CYSTIC  
BONY LESION**

**USUALLY AROUND THE 2ND AND 3RD DECADE**

**LONG BONES ARE AFFECTED**

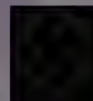
**LESIONS ARE PRESENT AROUND  
THE EPIPHYSIS**



OSTEOCLAST LIKE GIANT CELLS



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# **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**ALSO KNOWN AS GIANT CELL TUMOUR OF BONE**

**THE NEOPLASM CONTAINS LARGE NUMBERS OF OSTEOCLAST LIKE GIANT CELLS ADMIXED WITH MONONUCLEAR CELLS**

**USUALLY ARISES FROM EPIPHYSES OF LONG BONES**

**DISTAL FEMUR, PROXIMAL TIBIA, PROXIMAL HUMERUS AND DISTAL RADIUS ARE USUAL SITES**



# **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**MULTINUCLEATED GIANT CELLS ARE  
THE CLASSICAL HISTOLOGICAL  
PICTURE**

**GIANT CELLS ARE DERIVED FROM  
FUSION OF MONOCYTES**

**NEOPLASTIC COMPONENT IS MADE  
OF ROUND TO SPINDLE SHAPED  
MONONUCLEAR CELLS**



# **RENAL CELL CARCINOMA**

**PATIENT PRESENTS WITH MASS  
IN THE ABDOMEN**

**PAINLESS HAEMATURIA AND  
COSTOVERTEBRAL PAIN**

**OCCURS AFTER THE 4TH DECADE**

**RENAL BIOPSY IS DONE FOR  
CONFIRMATION OF DIAGNOSIS**

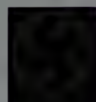
**NEPHRECTOMY IS DONE**



VACUOLATED TUMOUR CELLS



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# RENAL CELL CARCINOMA

THESE TUMOURS ARE DERIVED FROM  
RENAL TUBULAR EPITHELIUM  
HENCE THEY PREDOMINANTLY AFFECT  
THE **CORTEX OF THE KIDNEY**

THREE TYPES - CLEAR CELL CARCINOMA,  
PAPILLARY RENAL CELL CARCINOMA AND  
CHROMOPHOBE RENAL CARCINOMA

**CLEAR CELL CARCINOMA** IS THE MOST  
COMMONEST TYPE



# RENAL CELL CARCINOMA

**TUMOR CELLS APPEAR VACUOLATED DUE TO PRESENCE OF LIPID MATERIAL AND CAN BE DEMARCATED ONLY BY THEIR CELL MEMBRANE THEIR NUCLEI ARE SMALL AND ROUND**

**ALSO SEEN ARE GRANULAR CELLS RESEMBLING TUBULAR EPITHELIUM WHICH HAVE SMALL ROUND REGULAR NUCLEI ENCLOSED WITHIN GRANULAR PINK CYTOPLASM**

**CONNECTIVE TISSUE STROMA IS USUALLY SCANT BUT HIGHLY VASCULARISED**



# **CHRONIC PYELONEPHRITIS**

**PATIENT IS A DIABETIC**

**PRESENTING WITH FEVER,  
MALAISE AND BACKPAIN**

**PYURIA IS A PRESENTING FEATURE**

**ULTRASOUND AND RENAL BIOPSY  
LEADS TO CONFIRMATION  
OF DIAGNOSIS**

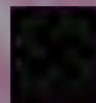
**NEPHRECTOMY IS DONE IN EXTREME CASES**





THYROIDISATION

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# **CHRONIC PYELONEPHRITIS**

**THIS CONDITION PREDOMINANTLY PRESENTS WITH INTERSTITIAL INFLAMMATION AND SCARRING OF RENAL PARENCHYMA ASSOCIATED WITH VISIBLE SCARRING AND DEFORMITY OF PELVICALYCEAL SYSTEM UNEVEN INTERSTITIAL FIBROSIS, INFLAMMATORY INFILTRATE OF LYMPHOCYTES AND PLASMA CELLS ARE SEEN**



# CHRONIC PYELONEPHRITIS

**DILATATION OR CONTRACTION OF LOBULES WITH ATROPHY OF LINING EPITHELIUM ARE SEEN**

**COLLOID CASTS THAT SUGGEST APPEARANCE OF THYROID TISSUE CALLED AS **THYROIDISATION** IS SEEN**

**CHRONIC INFLAMMATORY INFILTRATION AND FIBROSIS OF CALYCEAL MUCOSA AND WALL CAN BE VISUALISED**



# **VESICULAR MOLE**

**FEMALE PATIENT USUALLY PRESENTS  
WITH AMENORRHOEA AND BLEEDING  
PER VAGINUM**

**GROSS APPEARANCE RESEMBLES  
GRAPE LIKE MASSES**

**SERUM HCG LEVELS ARE ELEVATED**

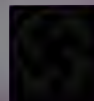
**DILATATION AND CURETTAGE IS DONE**



HYDROPIC SWELLING OF  
CHORIONIC VILLI



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# **VESICULAR MOLE**

**IT IS A GESTATIONAL TROPHOBLASTIC DISEASE**

**ALSO KNOWN AS HYDATIDIFORM MOLE**

**IT CAN BE COMPLETE OR PARTIAL  
CHARACTERISED BY VOLUMINOUS MASS  
OF SWOLLEN, CYSTICALLY DILATED  
CHORIONIC VILLI APPEARING LIKE A  
BUNCH OF GRAPES**



# **VESICULAR MOLE**

**HISTOLOGICAL PICTURE - HYDROPIC  
SWELLING OF CHORIONIC VILLI AND ABSENCE  
OF VASCULARISATION OF THE VILLI**

**THE CENTRAL SUBSTANCE OF THE VILLI IS  
LOOSE MYXOMATOUS AND OEDEMATOUS  
STROMA**

**THE CHORIONIC EPITHELIUM SHOWS SOME  
DEGREE OF PROLIFERATION OF  
CYTOTROPHOBLAST AND  
SYNCYTIOTROPHOBLAST**



# **PAPILLARY CARCINOMA OF THYROID**

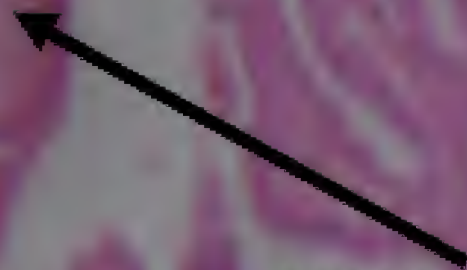
**PRESENTS AS A SOLITARY NODULE  
IN THE MIDLINE OF THE NECK**

**SWELLING IS OF A SHORT DURATION**

**ACCOMPANIED BY HOARSENESS OF VOICE**

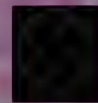
**BIOPSY IS THE INVESTIGATIVE PROCEDURE**





**PSAMMOMA BODY**

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# **PAPILLARY CARCINOMA OF THYROID**

**MOST COMMON FORM OF THYROID  
MALIGNANCY**

**NUCLEI OF MALIGNANT CELLS CONTAIN  
FINELY DISPERSED CHROMATIN  
PRESENTING A GROUND GLASS  
APPEARANCE**

**PAPILLARY ARCHITECTURE IS PRESENT  
NEOPLASTIC PAPILLAE HAVE DENSE  
FIBROVASCULAR CORES**



# **PAPILLARY CARCINOMA OF THYROID**

**CONCENTRICALLY CALCIFIED  
STRUCTURES CALLED AS  
PSAMMOMA BODIES ARE PRESENT  
WITHIN THE PAPILLAE**

**SOME TUMOURS ARE COMPOSED  
PREDOMINANTLY OF FOLLICLES  
ONLY**

**METASTASIS IS USUALLY TO THE  
ADJACENT LYMPH NODES**




# **ADENOCARCINOMA OF STOMACH**

**PATIENT PRESENTS WITH SEVERE PAIN IN  
THE ABDOMEN, LOSS OF APETITE AND  
WEIGHT LOSS**

**BIOPSY IS CONFIRMATORY**

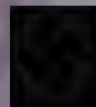
**PARTIAL OR SUBTOTAL  
GASTRECTOMY IS DONE**



A histological slide showing glandular tissue with neoplastic growth. The glands are irregular and crowded, with a loss of normal architecture. The cells lining the glands show nuclear atypia and increased mitotic activity. An arrow points to a specific area of the glandular pattern.

NEOPLASTIC GROWTH IN  
GLANDULAR PATTERN

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# **ADENOCARCINOMA OF STOMACH**

**ADENOCARCINOMA IS A LESION IN WHICH  
NEOPLASTIC EPITHELIAL CELLS GROW IN  
GLAND PATTERNS**

**IN EARLY STAGE THE LESION IS CONFINED TO  
MUCOSA AND SUBMUCOSA**

**IN ADVANCED STAGE THE LESION EXTENDS  
BELOW THE SUBMUCOSA INTO THE  
MUSCULAR WALL**

**METASTASIS - LYMPHATIC SPREAD - LEFT  
SUPRACLAVICULAR LYMPHADENITIS -  
VIRCHOW'S NODES**



# ADENOCARCINOMA OF STOMACH

**HISTOLOGICAL TYPES - INTESTINAL AND  
DIFFUSE VARIANTS**

**INTESTINAL - MALIGNANT CELLS  
FORMING NEOPLASTIC INTESTINAL  
GLANDS RESEMBLING COLONIC  
ADENOCARCINOMA**

**DIFFUSE - GASTRIC TYPE MUCOSAL  
CELLS, THEY DO NOT FORM GLANDS -  
SIGNET RING CELLS ARE SEEN**

**TRANSCOELOMIC SPREAD - TO OVARIES  
CAUSES KRUKENBERG'S TUMOUR**



# **PROLIFERATIVE ENDOMETRIUM**

**FEMALE PATIENT PRESENTS  
WITH HISTORY OF INFERTILITY  
ENDOMETRIAL BIOPSY AND  
CURETTAGE IS DONE**



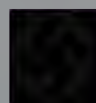


EPITHELIAL CELLS



ENDOMETRIAL CRYPT

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# **PROLIFERATIVE ENDOMETRIUM**

**IT IS THE OESTROGEN PHASE OF THE OVARIAN CYCLE**

**AFTER MENSTRUATION ONLY A THIN LAYER OF ENDOMETRIAL STROMA LIES AT THE BASE OF ORIGINAL ENDOMETRIUM**

**ONLY EPITHELIAL CELLS ARE LEFT IN THE REMAINING DEEP PORTIONS OF GLANDS AND CRYPTS OF ENDOMETRIUM**

**THE STROMAL CELLS AND EPITHELIAL CELLS PROLIFERATE RAPIDLY UNDER THE INFLUENCE OF OESTROGEN**



# **SECRETORY ENDOMETRIUM**

**RELATIVELY YOUNG FEMALE  
PATIENT PRESENTS WITH  
HISTORY OF INFERTILITY**

**PREMENSTRUAL ENDOMETRIAL  
CURETTAGE IS DONE**





TORTUOUS ENDOMETRIAL GLAND

This histological slide shows endometrial tissue stained with hematoxylin and eosin (H&E). The glands are highly convoluted and irregular, a characteristic feature of hyperplastic or neoplastic endometrium. Two black arrows point to specific glandular structures: one points to a highly tortuous gland, and the other points to a gland exhibiting a corkscrew appearance.

CORK SCREW APPEARANCE

**ANAND'S ATLAS OF PATHOLOGY**



**ANAND'S ATLAS OF PATHOLOGY**



# SECRETORY ENDOMETRIUM

IT IS THE **PROGESTERONE** PHASE OF THE  
OVARIAN CYCLE

THE ENDOMETRIAL GLANDS INCREASE IN  
**TORTUOSITY** PRESENTING A **CORK SCREW**  
**APPEARANCE**

EXCESS OF SECRETORY SUBSTANCES  
ACCUMULATE IN THE GLANDULAR EPITHELIAL  
CELLS

CYTOPLASM OF THE STROMAL CELLS ALSO  
INCREASE

THERE IS ALSO AN INCREASE OF LIPID AND  
GLYCOGEN DEPOSITS IN THE STROMAL CELLS



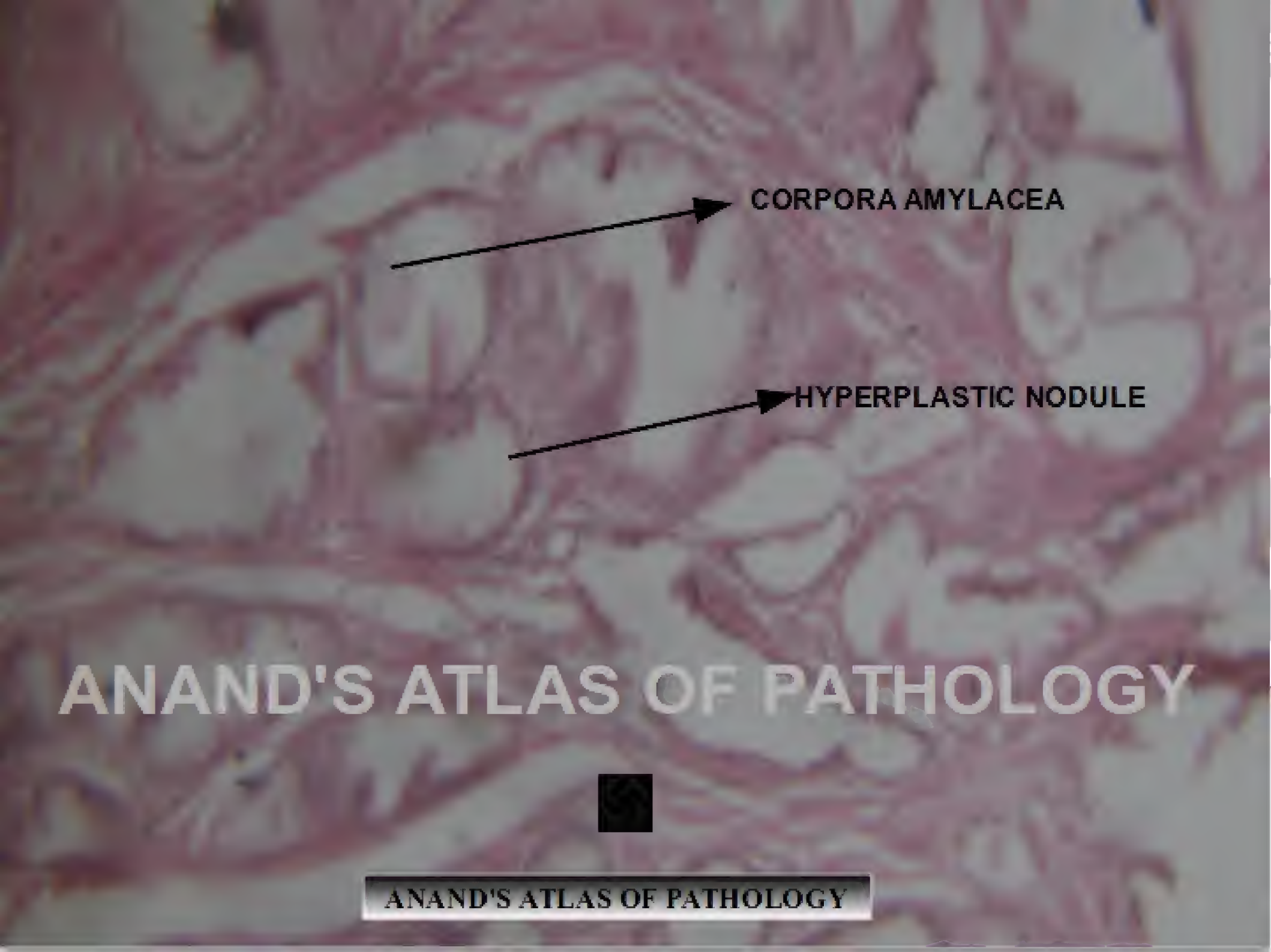
# **BENIGN HYPERPLASIA OF PROSTATE**

**PATIENT IS USUALLY AN ELDERLY MALE IN THE  
6TH DECADE OF LIFE**

**PRESENTING COMPLAINTS INCLUDE FREQUENT  
MICTURITION, URGENCY,  
DRIBBLING DROPLETS OF URINE  
AND PAIN**

**PROSTATECTOMY IS DONE**



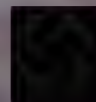


CORPORA AMYLACEA

This is a light micrograph of a pancreatic tissue section stained with hematoxylin and eosin (H&E). The image shows acinar structures with pale-staining corpora amylacea (proteinaceous concretions) and a hyperplastic nodule, which is a cluster of cells with increased nuclear density and disorganized architecture, suggesting a precancerous or early neoplastic change.

HYPERPLASTIC NODULE

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# **BENIGN HYPERPLASIA OF PROSTATE**

**ALSO KNOWN AS NODULAR HYPERPLASIA,  
GLANDULAR AND STROMAL HYPERPLASIA  
CHARACTERISED BY PROLIFERATION OF  
EPITHELIAL AND STROMAL ELEMENTS  
RESULTING IN ENLARGEMENT OF THE  
GLAND**

**ENLARGEMENT RESULTS IN URINARY  
OBSTRUCTION**

**ANDROGENS AND OESTROGENS PLAY A  
SYNERGISTIC ROLE IN DEVELOPMENT OF  
THIS CONDITION**



# **BENIGN HYPERPLASIA OF PROSTATE**

**IT ARISES FROM THE PERIURETHRAL GLANDS OF THE PROSTATE**

**HYPERPLASTIC NODULES ARE COMPOSED OF VARYING PROPORTIONS OF PROLIFERATING GLANDULAR ELEMENTS AND FIBROMUSCULAR STROMA**

**HYPERPLASTIC GLANDS ARE LINED BY TALL COLUMNAR CELLS AND A PERIPHERAL LAYER OF FLATTENED BASAL CELLS**

**GLANDULAR LUMEN USUALLY CONTAINS PROTINACEOUS SECRETORY MATERIAL CALLED AS CORPORA AMYLACEA**



# **COLLOID GOITRE**

**PREDOMINANTLY SEEN IN YOUNG FEMALES**

**PRESENTS AS GLOBULAR SWELLING  
OF THE THYROID GLAND  
OF LONG STANDING DURATION**

**BIOPSY IS CONFIRMATORY**

**EXCISION OF MASS IS DONE**

**CUT SECTION OF MASS REVEALS BROWNISH COLLOID**



COLLOID RICH THYROID FOLLICLE

EPITHELIUM OF THYROID FOLLICLE

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# COLLOID GOITRE

**GOITRE IS A SIMPLE ENLARGEMENT OF THYROID GLAND**

**IT IS THE MOST COMMON THYROID DISEASE**

**IF DIETARY IODINE INCREASES OR DEMANDS FOR THYROID HORMONE DECREASES, THE STIMULATED FOLLICULAR EPITHELIUM INVOLUTES TO FORM AN ENLARGED COLLOID RICH GLAND CALLED AS COLLOID GOITRE**

**THE FOLLICULAR EPITHELIUM IS HYPERPLASTIC AND MAY BE FLATTENED OR CUBOIDAL DEPENDING ON THE LEVEL OF COLLOID**



# **LEIOMYOMA OF UTERUS (FIBROID UTERUS)**

**FEMALE PATIENT PRESENTS  
WITH COMPLAINTS OF MENORRHAGIA  
URINARY DISTURBANCE AND LOW BACK ACHE**

**ULTRASONOGRAPHY REVEALS MASS IN  
THE UTERINE WALLS**

**MAY BE SINGLE OR MULTIPLE**

**OCCURS AROUND THE 4TH DECADE**

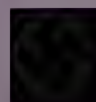
**HYSTERECTOMY IS A PREFERRED  
TREATMENT MODALITY**



WHORLING BUNDLES OF SMOOTH MUSCLE CELLS



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ANAND'S ATLAS OF PATHOLOGY



# **LEIOMYOMA OF UTERUS (FIBROID UTERUS)**

**BENIGN TUMOUR ARISING FROM SMOOTH MUSCLE CELLS IN THE MYOMETRIUM OF UTERUS ARE TERMED AS LEIOMYOMAS ALSO CALLED AS FIBROID UTERUS**

**MICROSCOPICALLY IT SHOWS WHORLING BUNDLES OF SMOOTH MUSCLE CELLS DUPLICATING THE ARCHITECTURE OF NORMAL MYOMETRIUM**

**FOCI OF FIBROSIS, CALCIFICATION, ISCHAEMIC NECROSIS, CYSTIC DEGENERATION AND HAEMORRHAGE MAY BE PRESENT**



# **ACUTE APPENDICITIS**

**YOUNG INDIVIDUAL PRESENTS WITH  
SUDDEN ONSET OF FEVER, VOMITTING  
AND ABDOMINAL PAIN**

**TENDERNESS IS PRESENT IN THE  
RIGHT ILIAC FOSSA**

**BLOOD SMEAR REVEALS NEUTROPHILIA**

**ULTRASONOGRAPHY REVEALS AN ENLARGED  
AND INFLAMMED APPENDIX**

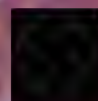
**APPENDICECTOMY IS DONE**



A histological slide stained with hematoxylin and eosin (H&E) showing tissue necrosis. The tissue is characterized by a loss of normal cellular architecture, with areas of pale, eosinophilic (pink) material interspersed among the darker, purple-stained nuclei. An arrow points from the text 'TISSUE NECROSIS' to a specific area of this pale, necrotic tissue.

TISSUE NECROSIS

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# ACUTE APPENDICITIS

IN EARLY STAGES SCANT NEUTROPHILIC EXUDATES WILL BE FOUND IN THE COATS OF THE APPENDIX

THE INFLAMMATORY REACTION TRANSFORMS NORMAL GLISTENING SEROSA INTO A DULL, GRANULAR RED MEMBRANE

IN LATER STAGES, PROMINENT NEUTROPHILIC EXUDATE GENERATES A FIBROPURULENT REACTION OVER SEROSA THIS LEADS TO AN ABSCESS FORMATION



# **ACUTE APPENDICITIS**

**ABSCESS FORMATION WITHIN THE WALLS LEADS TO ULCERATIONS AND FOCI OF NECROSIS IN THE MUCOSA**

**FURTHER DETERIORATION RESULTS IN GANGRENOUS NECROSIS OF APPENDICULAR MUCOSA**



# **TUBERCULOUS LYMPHADENITIS**

**PATIENT PRESENTS WITH  
HISTORY OF TUBECULOSIS**

**MULTIPLE SWELLINGS / ENLARGEMENT  
OF LYMPH NODES IN THE NECK**

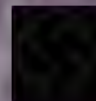
**CERVICAL GROUP OF LYMPH NODES  
ARE ENLARGED**

**LYMPH NODE EXCISION BIOPSY  
IS CONFIRMATORY**



GRANULOMA

ANAND'S ATLAS OF PATHOLOGY



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# **TUBERCULOUS LYMPHADENITIS**

**SECONDARY INFLAMMATION OF  
DRAINING LYMPH NODES IS CALLED  
AS LYMPHADENITIS**

**IT IS THE COMMONEST FORM OF  
EXTRAPULMONARY TUBERCULOSIS**

**USUALLY OCCURS IN THE CERVICAL  
REGION - SCROFULA**



# **TUBERCULOUS LYMPHADENITIS**

**AFFECTED LYMPH NODES SHOW  
GRANULOMATOUS INFLAMMATORY  
REACTION**

**MAY FORM CASEATING OR NON CASEATING  
TUBERCLES**

**GRANULOMAS ARE ENCLOSED WITHIN A  
FIBROELASTIC RIM PUNCTUATED BY  
LYMPHOCYTES**

**MULTINUCLEATED GIANT CELLS WILL BE  
PRESENT IN THE GRANULOMAS**



# **RHINOSPOROIDOSIS**

**COMMONLY OCCURS IN YOUNG  
INDIVIDUALS**


**PRESENTS AS A POLYP IN THE NOSE**

**USUALLY INFECTION SPREADS  
WHO COME IN CONTACT  
WITH WATER BODIES LIKE  
SWIMMING**

**POLYPECTOMY IS DONE**

**EXCISION BIOPSY IS CONFIRMATORY**

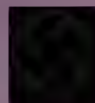




FUNGAL SPHERULES CONTAINING  
ENDOSPORES

A black arrow points from the text label to a cluster of small, dark, oval-shaped structures within a larger, lighter-colored, granular area of the tissue.

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# **RHINOSPOROIDOSIS**

**IT IS A CHRONIC GRANULOMATOUS DISEASE**

**A TYPE OF SUBCUTANEOUS MYCOSES**

**CAUSATIVE FUNGUS IS RHINOSPORIDIUM  
SEEBERI**

**MODE OF INFECTION IS NOT KNOWN BUT  
THOUGHT TO ORIGINATE FROM STAGNANT  
WATER OR AQUATIC LIFE**

**FUNGUS HAS NOT BEEN CULTIVATED IN A  
LABORATORY**



# **RHINOSPOROIDOSIS**

**CHARACTERISED BY DEVELOPMENT OF  
FRIABLE POLYPS CONFINED TO NOSE,  
MOUTH OR EYE**

**DISEASE IS LIMITED TO THE MUCOUS  
MEMBRANES**

**MICROSCOPICALLY LESION SHOWS LARGE  
NUMBERS OF FUNGAL SPHERULES**

**EMBEDDED IN A STROMA OF CONNECTIVE  
TISSUE AND CAPILLARIES**

**THE SPHERULES CONTAIN THOUSANDS OF  
ENDOSPORES**



# **MADURA MYCOSIS**

**OCCURS IN AGRICULTURAL WORKERS**

**ALSO KNOWN AS MADURA FOOT**

**HISTORY OF A PENETRATING INJURY IS PRESENT**

**PATIENT PRESENTS WITH A MASS  
IN THE FOOT WITH MULTIPLE  
DISCHARGING SINUSES**

**EXCISION BIOPSY IS DONE**





FUNGAL GRANULES CONTAINING  
MADURELLA MYCETOMI

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# MADURA MYCOSIS

**IT IS A TYPE OF SUBCUTANEOUS MYCOSES  
DISEASE FIRST REPORTED FROM MADURAI  
IN 1842**

**IT IS A CHRONIC SLOWLY PROGRESSING  
FUNGAL INFECTION OF THE  
SUBCUTANEOUS TISSUE**

**CAUSATIVE ORGANISM IS BELIEVED TO  
ENTER THROUGH A MINOR TRAUMA**

**ORGANISM IS MADURELLA MYCETOMI**



# MADURA MYCOSIS

**DISEASE USUALLY BEGINS AS A  
SWELLING IN THE FOOT  
IT BURROWS INTO DEEPER TISSUES  
AND RESULTS IN MULTIPLE  
DISCHARGING SINUSES  
MICROSCOPICALLY MICROCOLONIES  
OF AETIOLOGICAL AGENTS IN THE  
FORM OF GRANULES OR GRAINS CAN  
BE DEMONSTRATED**



# **ACTINOMYCOSIS**


**PREDOMINANTLY SEEN IN FEMALES**

**PRESENTS AS A MASS AROUND  
THE CHEEKS AND THE JAW**

**MASS CONTAINS MULTIPLE  
DISCHARGING SINUSES**

**BIOPSY IS CONFIRMATORY**





CLUB SHAPED  
GRANULES CONTAINING  
BACTERIAL FILAMENTS

A black arrow points from the text to a specific granule in the microscopic image.

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# ACTINOMYCOSIS

**IT IS A CHRONIC GRANULOMATOUS INFECTION  
CHARACTERISED BY INDURATED SWELLINGS,  
SUPPURATION AND DISCHARGE OF SULPHUR  
GRANULES**

**PRESENCE OF MULTIPLE DISCHARGING  
SINUSES**

**CERVICOFACIAL TYPE PRESENTS WITH  
INDURATED LESIONS ON THE CHEEK AND  
SUBMAXILLARY REGIONS**

**ACTINOMYCOSES CAN ALSO PRESENT AS A  
MYCETOMA**



# ACTINOMYCOSIS

**MICROSCOPICALLY THE GRANULES ARE BACTERIAL COLONIES WITH DENSE NETWORK OF FILAMENTS SURROUNDED BY A PERIPHERAL ZONE OF SWOLLEN RADIATING CLUB SHAPED STRUCTURES THIS IS SUN RAY APPEARANCE**

**THE CLUBS ARE FORMED BY DEPOSITION OF LIPOID MATERIAL AROUND THE BACTERIAL FILAMENTS AS A PART OF TISSUE REACTION**



# **FIBROADENOMA - MIXED**

**OCCURS IN YOUNG FEMALES**

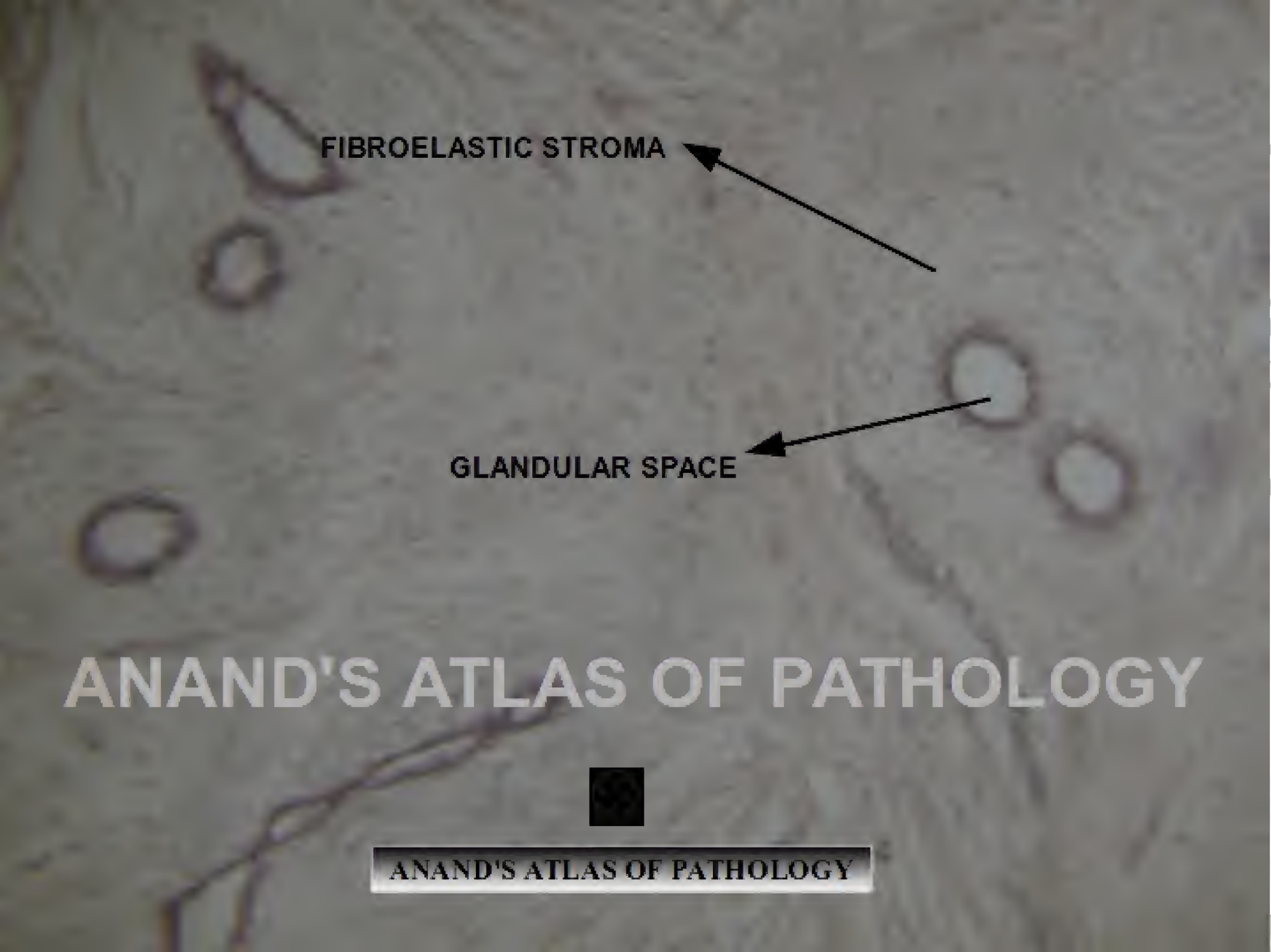
**PRESENTS AS A FREELY MOBILE MASS  
IN THE BREAST**

**ALSO KNOWN AS THE BREAST MOUSE**

**FNAC IS DONE**

**EXCISION BIOPSY IS DONE**

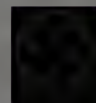


A microscopic image of glandular tissue, likely from the pancreas, showing acinar structures. The image is overlaid with text labels and arrows. The label 'FIBROELASTIC STROMA' is positioned in the upper left, with an arrow pointing to the connective tissue between the glandular units. The label 'GLANDULAR SPACE' is positioned in the center, with an arrow pointing to the lumen of a glandular unit. The background is a light pinkish-grey, and the glandular structures are stained a darker pink.

FIBROELASTIC STROMA

GLANDULAR SPACE

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# FIBROADENOMA - MIXED

**FIBROADENOMA OF BREAST IS A COMMON MIXED TUMOUR**

**IT IS ALWAYS BENIGN, RARELY UNDERGOES MALIGNANT CHANGE**

**TUMOUR CONTAINS A MIXTURE OF PROLIFERATED DUCTAL ELEMENTS (ADENOMA) EMBEDDED IN A LOOSE FIBROUS TISSUE (FIBROMA)**

**IT APPEARS IN YOUNG WOMEN AND AN INCREASE IN OESTROGEN ACTIVITY IS THOUGHT TO PLAY A ROLE IN ITS DEVELOPMENT**



# **FIBROADENOMA - MIXED**

**HISTOLOGICALLY THERE IS A LOOSE FIBROELASTIC STROMA CONTAINING DUCT LIKE EPITHELIUM LINED SPACES OF VARIOUS FORMS AND SIZES THESE GLANDULAR SPACES ARE LINED WITH SINGLE OR MULTIPLE LAYERS OF CELLS AND HAVE A WELL DEFINED INTACT BASEMENT MEMBRANE**



# SECTION - 2

## CYTOLOGY SLIDES



# LIST OF COLOUR PLATES

## CARCINOMA OF BREAST

### ASCITIC FLUID - SECONDARY DEPOSITS



# CARCINOMA OF BREAST

OCCURS PREDOMINANTLY IN FEMALES

RARELY CAN OCCUR IN MALES ALSO

USUALLY PRESENTS AROUND THE 5TH DECADE

DIFFUSE MASS PRESENT IN THE BREAST

REGIONAL LYMPHADENITIS IS PRESENT


SKIN OVER THE BREAST RESEMBLES  
AN ORANGE PEEL (PEAU D ORANGE)

NIPPLE IS RETRACTED

FNAC IS THE CHOICE OF INVESTIGATION

MASTECTOMY IS DONE

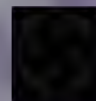




DOUBLE LAYERED  
PAPILLAE

A histological slide showing a cluster of cells with a double-layered papillary structure. An arrow points to the double-layered papillae.

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# CARCINOMA OF BREAST

**FINE NEEDLE ASPIRATION CYTOLOGY IS A LABORATORY METHOD FOR DIAGNOSIS OF MALIGNANCY**

**INVOLVES ASPIRATION OF CELLS FROM A MASS FOLLOWED BY CYTOLOGICAL EXAMINATION OF THE SMEAR**

**DONE USUALLY IN PATIENTS NOT FIT FOR OPEN BIOPSY**

**CARCINOMA BREAST IS NOT COMMON IN WOMEN BELOW THE AGE OF 30 YEARS**



# CARCINOMA OF BREAST

## FEATURES COMMON TO ALL INVASIVE CANCERS

**BREAST LUMP**

**FIXITY TO CHEST WALL**

**RETRACTION OR DIMPLING OF NIPPLE**

**LYMPHOEDEMA**

**PEAU D'ORANGE -THICKENING OF  
SKIN AROUND EXAGGERATED HAIR  
FOLLICLES**



# **ASCITIC FLUID - SECONDARY DEPOSITS**

**ASCITES – COLLECTION OF FLUID IN THE  
GENERAL PERITONEAL CAVITY**

**THIS COLLECTION CAN BE SECONDARY TO  
LIVER DYSFUNCTION OR MAY BE  
DUE TO MALIGNANCY IN PELVIC ORGANS**

**THIS CASE PERTAINS TO MASS IN THE OVARY  
IN A WOMAN IN THE 7TH DECADE**

**THE ASPIRATED FLUID WAS HAEMORRHAGIC**



A histological slide showing a dense population of cells with prominent, dark purple nuclei and pink cytoplasm/extracellular matrix. An arrow points from the text 'NEOPLASTIC CELLS' to a specific cluster of these cells.

NEOPLASTIC CELLS

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# **ASCITIC FLUID - SECONDARY DEPOSITS**

**INCREASED FLUID IN INTERSTITIAL TISSUE SPACES IS TERMED AS OEDEMA**

**ACCUMULATION OF FLUID IN THE GENERAL PERITONEAL CAVITY IS TERMED AS HYDROPERITONEUM OR ASCITIS**

**ASCITIC FLUID ASPIRATION AND CYTOLOGICAL SMEAR PREPARATION IS A LABORATORY METHOD FOR DIAGNOSIS OF NEOPLASIA**

**PRIMARY IN THIS CASE - OVARIAN MALIGNANCY**



# **ASCITIC FLUID - SECONDARY DEPOSITS**

**ASCITIC FLUID ASPIRATION AND CYTOLOGY IS DONE FOR DIAGNOSING PRIMARY SITE OF MALIGNANCY - FLUID IS USUALLY HAEMORRHAGIC**

**PROBABLE SITES OF MALIGNANCY -**

**ENDOMETRIUM OF UTERUS, LUNGS, URINARY BLADDER, PROSTATE AND STOMACH**

**NEOPLASTIC CELLS ARE LESS COHESIVE THAN NORMAL CELLS HENCE THEY ARE SHED INTO BODY FLUIDS - EXFOLIATION**

**SHED CELLS ARE EVALUATED FOR FEATURES OF ANAPLASIA INDICATIVE OF THEIR ORIGIN OF CANCER**



# SECTION - 3

## HAEMATOLOGY SLIDES



# **LIST OF COLOUR PLATES**

**IRON DEFICIENCY ANAEMIA**

**NEUTROPHILIA**

**EOSINOPHILIA**

**ACUTE MYELOID LEUKEMIA**

**ACUTE LYMPHOCYTIC LEUKEMIA**

**CHRONIC MYELOID LEUKEMIA**

**CHRONIC LYMPHOCYTIC LEUKEMIA**

**MULTIPLE MYELOMA**



# **IRON DEFICIENCY ANAEMIA**

**THERE IS SEVERE REDUCTION  
IN HAEMOGLOBIN %**

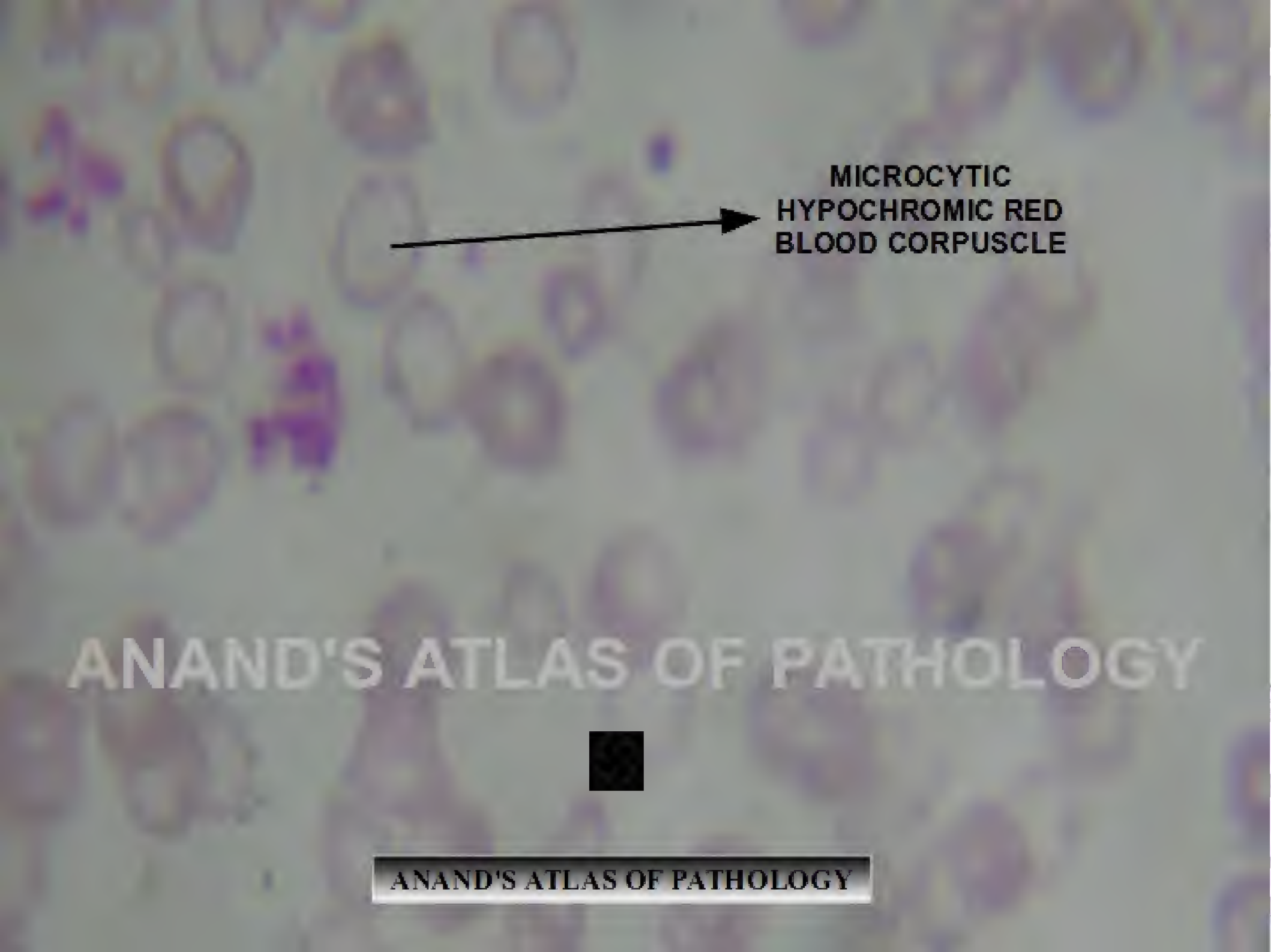
**VERY COMMON IN WOMEN**

**CAN ALSO OCCUR IN WORM INFESTATION  
AND MALIGNANCY**

**PREGNANCY IS A PROBABLE  
PHYSIOLOGICAL CAUSE**

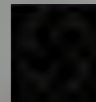
**PERIPHERAL BLOOD SMEAR IS  
THE COMMONEST INVESTIGATION**





**MICROCYTIC  
HYPOCHROMIC RED  
BLOOD CORPUSCLE**

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# IRON DEFICIENCY ANAEMIA

**MOST COMMONEST FORM OF NUTRITIONAL DEFICIENCY**

**MICROSCOPICALLY RBC'S ARE MICROCYTIC AND HYPOCHROMIC REFLECTING THE REDUCED MCV AND MCHC**

**IRON DEFICIENCY ANAEMIA IS USUALLY ACCOMPANIED BY AN INCREASE IN THE PLATELET COUNT**

**PICTURE WILL ALSO SHOW NORMOBLASTIC HYPERPLASIA**

**HAEMOSIDERIN IN CYTOPLASM FORM LARGE CLUSTERS**



# **NEUTROPHILIA**

**PATIENT USUALLY PRESENTS  
WITH FEVER AND MALAISE**

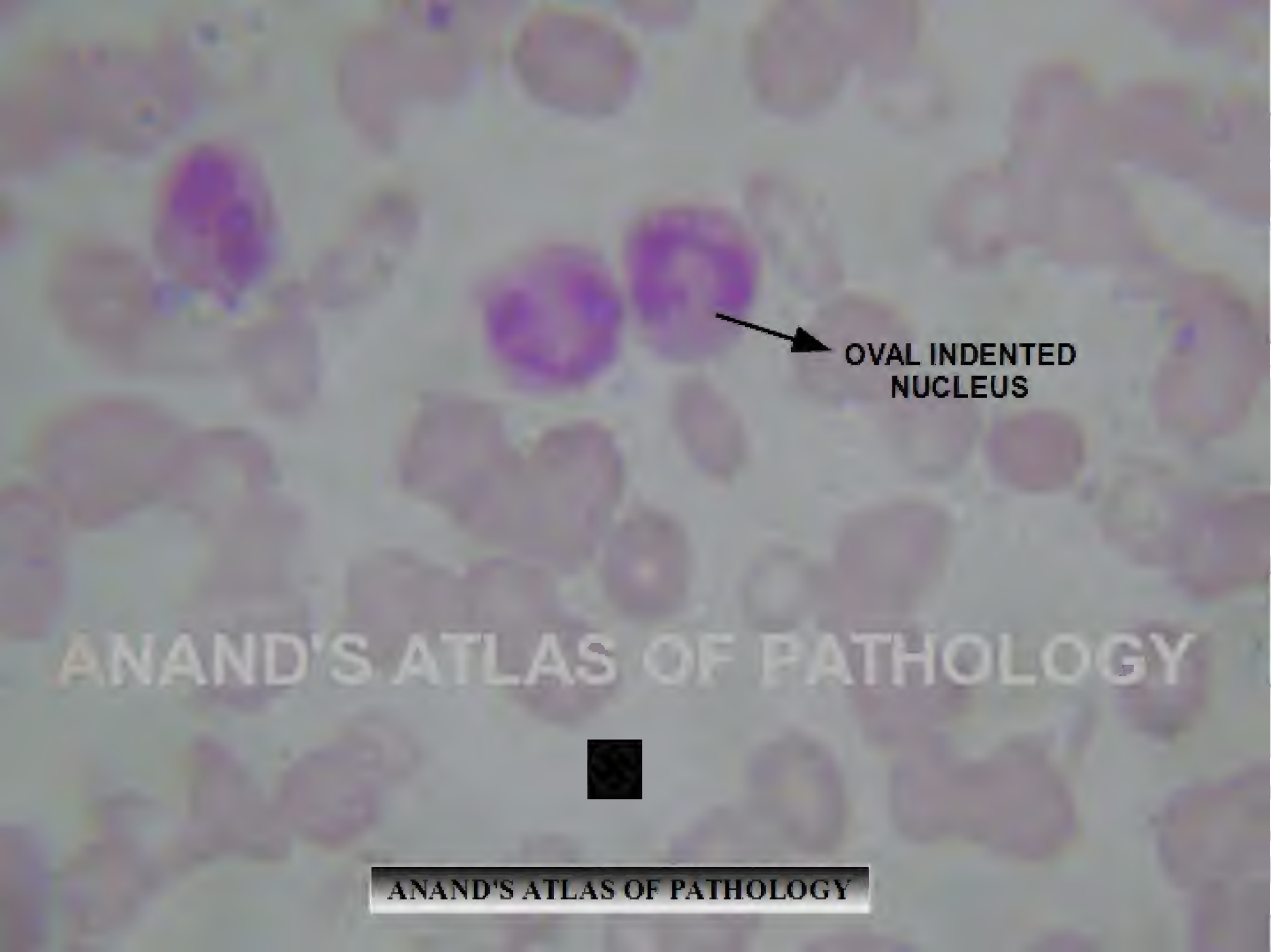
**COUGH WITH EXPECTORATION  
IS PRESENT**

**SPUTUM USUALLY RESEMBLES PUS**

**LUNG OPACITY IS SEEN IN AN XRAY**

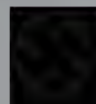
**PERIPHERAL BLOOD SMEAR IS TAKEN**





OVAL INDENTED  
NUCLEUS

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# NEUTROPHILIA

**NEUTROPHILIA IS RELATIVELY A SELECTIVE INCREASE IN POLYMORPHONUCLEAR CELLS INDUCED BY BACTERIAL INFECTIONS**

**IT IS BASICALLY A NON NEOPLASTIC DISORDER OF WBC'S**

**MICROSCOPICALLY THERE ARE A LARGE NUMBER OF ATYPICAL LYMPHOCYTES**

**LYMPHOCYTES ARE CHARACTERISED BY ABUNDANT CYTOPLASM CONTAINING MULTIPLE CLEAR VACUOLATIONS AND AN OVAL INDENTED OR FOLDED NUCLEUS**



# **EOSINOPHILIA**

**OCCURS IN YOUNG INDIVIDUALS**

**PATIENTS PRESENT WITH FEVER AND  
ASSOCIATED RIGORS**

**THERE IS UNILATERAL  
PITTING OEDEMA IN  
THE LOWER LIMB**

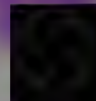
**PERIPHERAL BLOOD SMEAR  
IS DONE**



INCREASED PRESENCE  
OF  
EOSINOPHILS



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# **EOSINOPHILIA**

**IT IS AN INCREASED COUNT OF EOSINOPHILS IN BLOOD DUE TO PARASITIC INFECTIONS AND ALLERGIC RESPONSES**

**THEY MIGRATE INTO TISSUES DISEASED BY PARASITES**

**THE EOSINOPHILS MIGRATE TOWARDS INFECTED TISSUE BECAUSE OF EOSINOPHIL CHEMOTACTIC FACTOR SECRETED BY MAST CELLS AND BASOPHILS**

**EOSINOPHILS ALSO DETOXYIFY INFLAMMATION INDUCING SUBSTANCES SECRETED BY THE MAST CELLS AND BASOPHILS**



# **ACUTE MYELOID LEUKEMIA**

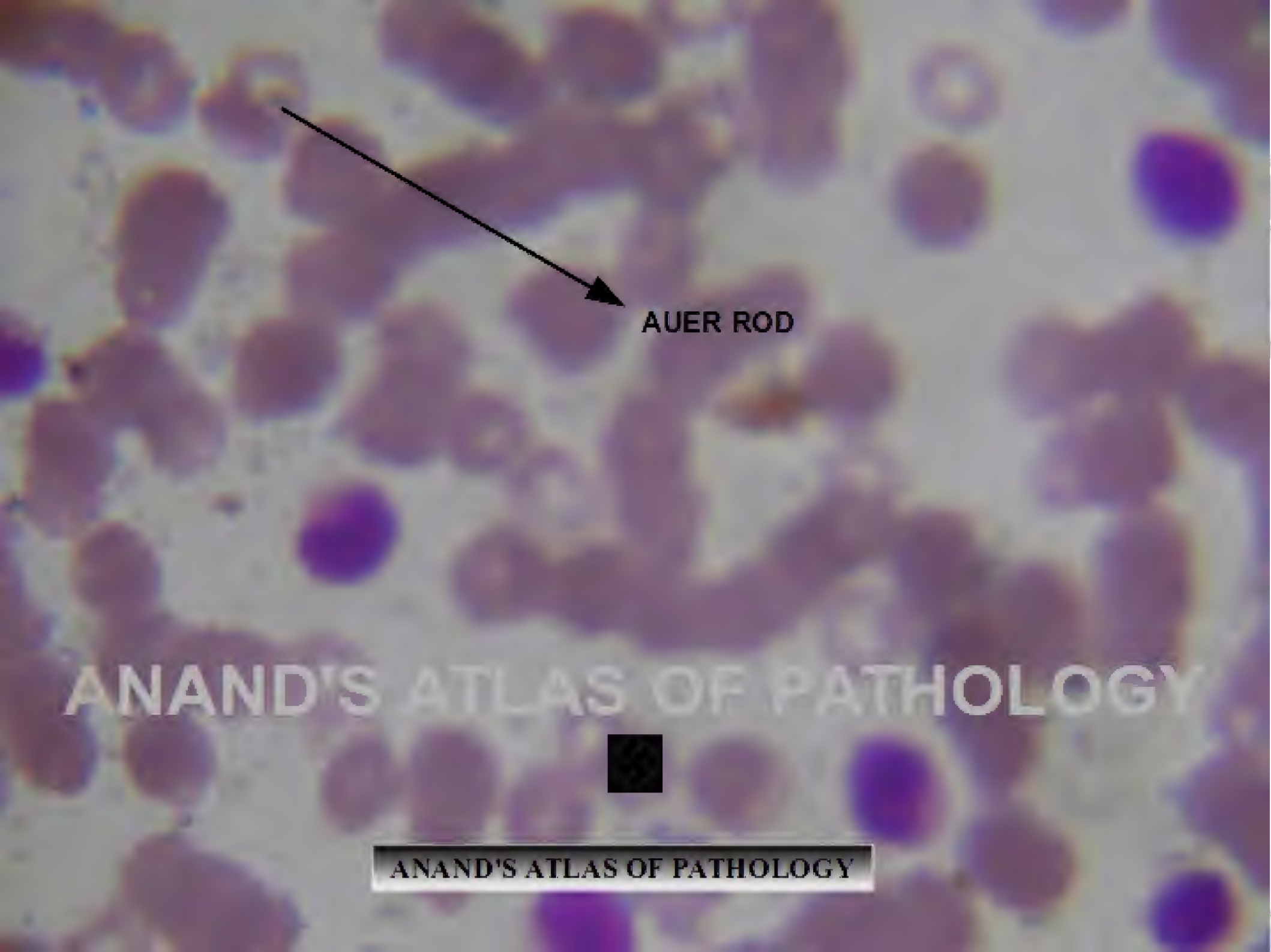
**AFFECTS YOUNG INDIVIDUALS**

**PRESENTS WITH HISTORY OF  
FEVER DURATION OF  
THREE MONTHS AND ABOVE**

**THERE IS PRESENCE OF SEVERE  
ANEMIA**

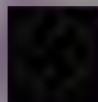
**PERIPHERAL BLOOD SMEAR  
IS DONE**





AUER ROD

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ANAND'S ATLAS OF PATHOLOGY



# ACUTE MYELOID LEUKEMIA

**MYELOBLASTS CAN BE DIFFERENTIATED FROM  
LYMPHOBLASTS BY GIEMSA STAIN**

**BLAST CELLS HAVE DELICATE NUCLEAR  
CHROMATIN**

**THREE TO FIVE NUCLEOLI ARE SEEN**

**FINE AZUROPHILIC GRANULES IN CYTOPLASM**

**DISTINCTIVE RED STAINING ROD LIKE  
STRUCTURES CALLED AS AUER RODS ARE  
PRESENT**

**AUER RODS ARE FOUND ONLY IN NEOPLASTIC  
MYELOBLASTS**



# **ACUTE LYMPHOCYTIC LEUKEMIA**

**SEEN IN ADOLESCENTS**

**PRESENTS WITH GENERALISED  
LYMPHADENOPATHY**

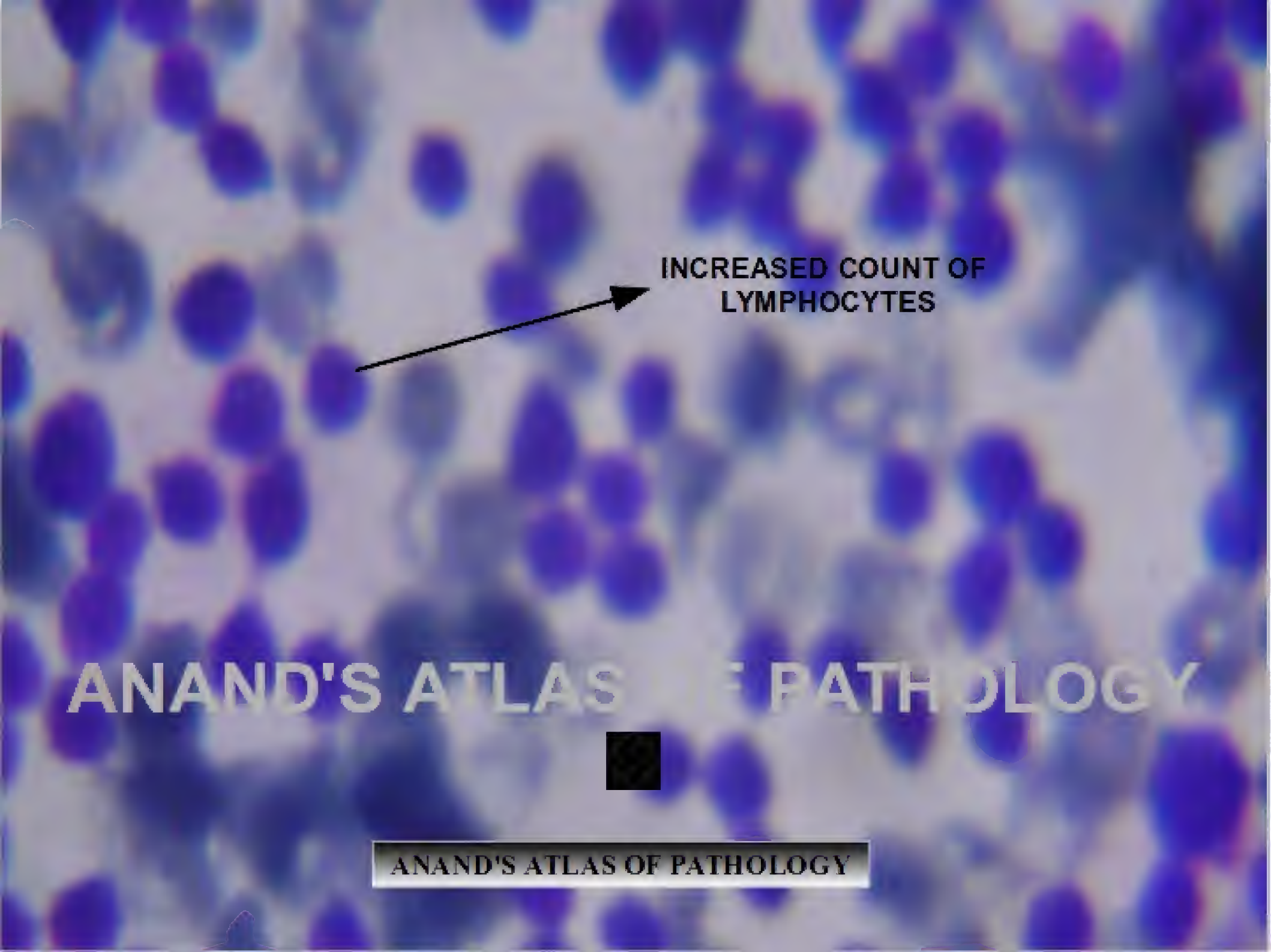
**SPLENOMEGALY**

**HEPATOMEGALY**

**LOSS OF WEIGHT**

**PERIPHERAL BLOOD SMEAR IS DONE**

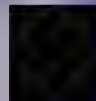




INCREASED COUNT OF  
LYMPHOCYTES

An arrow points from the text to a cluster of lymphocytes in the upper-middle part of the image.

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# ACUTE LYMPHOCYTIC LEUKEMIA

**LYMPHOCYTIC LEUKEMIAS ARE CAUSED BY INCREASED PRODUCTION OF LYMPHOID CELLS**

**THE NUCLEI ARE COARSE AND HAVE CLUMPED CHROMATIN**

**ONLY ONE OR TWO NUCLEOLI WILL BE PRESENT**

**CYTOPLASM CONTAINS LARGE AGGREGATES OF PAS POSITIVE MATERIAL**

**TO DIFFERENTIATE FROM AML -  
MYELOBLASTS ARE PEROXIDASE POSITIVE**



# **CHRONIC MYELOID LEUKEMIA**

**USUALLY OCCURS IN THE  
5TH DECADE**

**PATIENT PRESENTS WITH FEVER AND  
MODERATE WEIGHT LOSS**

**MASSIVE SPLENOMEGALY**

**DRAGGING PAIN IN THE LEFT SIDE  
OF ABDOMEN**

**PERIPHERAL BLOOD SMEAR IS DONE**

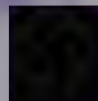




MATURE NEUTROPHILS

A microscopic image of a blood smear stained with hematoxylin and eosin (H&E). The field is populated with numerous neutrophils, which are characterized by their multi-lobed, segmented nuclei. The nuclei are stained a deep purple, while the surrounding cytoplasm and extracellular matrix are a lighter, pinkish-purple. An arrow points from the text 'MATURE NEUTROPHILS' to one of these cells.

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# **CHRONIC MYELOID LEUKEMIA**

**PERIPHERAL SMEAR WILL SHOW A LARGE  
NUMBER OF MATURE NEUTROPHILS  
SOME METAMYELOCYTES AND MYELOCYTES  
INCREASED EOSINOPHILS, BASOPHILS AND  
NUCLEATED RED CELLS WILL BE SEEN  
THERE WILL A DRAMATIC INCREASE IN THE  
NUMBER OF MATURE CIRCULATING  
MYELOBLASTS  
HISTOLOGICALLY THE PICTURE IS THAT OF  
NORMOCYTIC NORMOCHROMIC ANAEMIA**



# **CHRONIC LYMPHOCYTIC LEUKEMIA**

**OCCURS IN THE 6TH DECADE**

**PATIENT PRESENTS WITH**

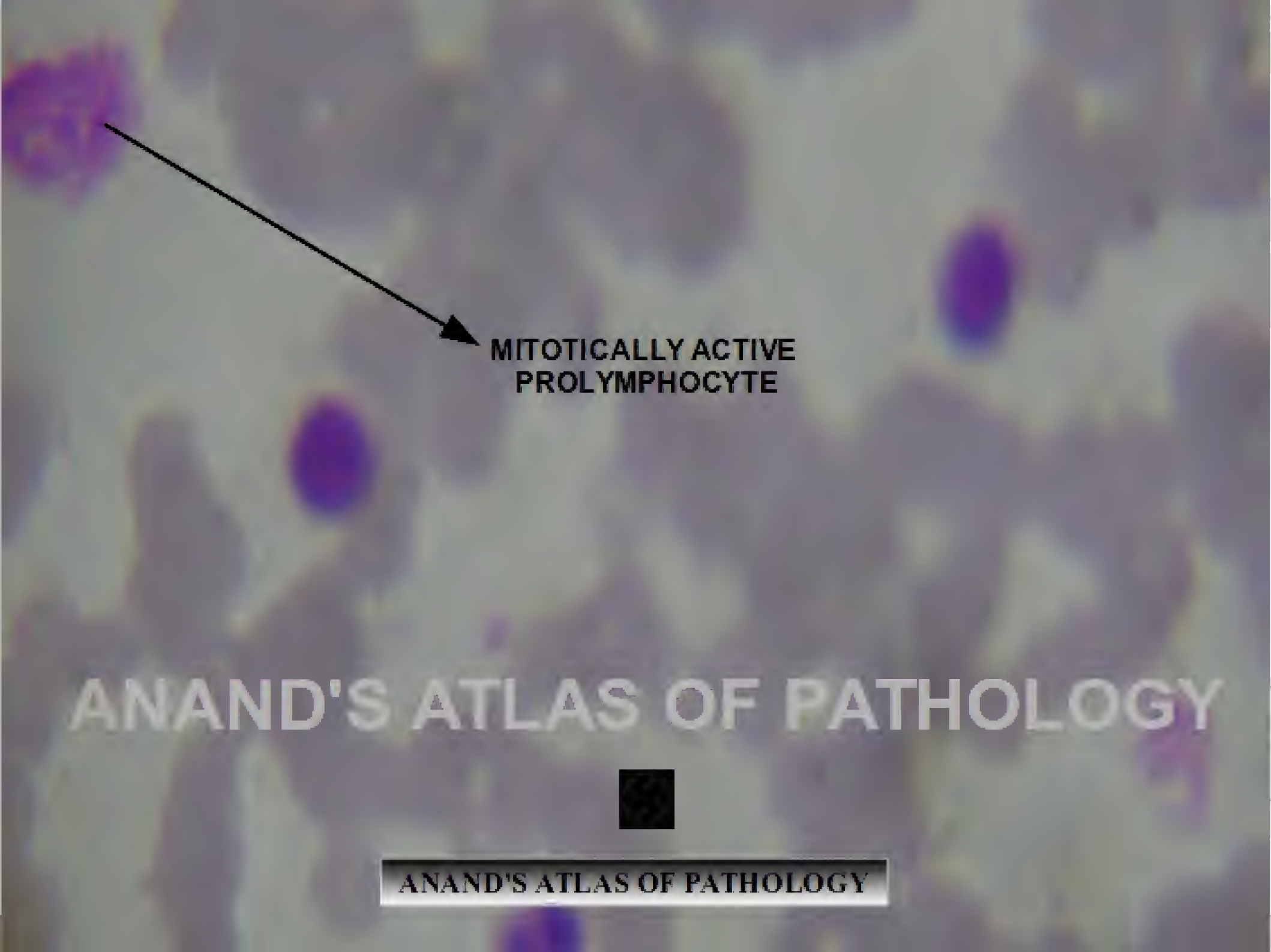
**FEVER, FATIGUE AND WEIGHT LOSS**

**GENERALISED LYMPHADENOPATHY IS PRESENT**

**DIFFERENTIAL COUNT SHOWS  
ABNORMALLY HIGH LEUKOCYTOSIS**

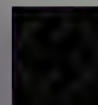
**PERIPHERAL BLOOD SMEAR IS DONE**



A microscopic image of a tissue section, likely a lymph node, stained with hematoxylin and eosin (H&E). The image shows numerous cells with prominent, dark purple nuclei. An arrow points from the top left towards a specific cell in the center-right, which is identified as a mitotically active prolymphocyte. The background is a light pinkish-purple, representing the cytoplasm and extracellular matrix.

MITOTICALLY ACTIVE  
PROLYMPHOCYTE

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# CHRONIC LYMPHOCYTIC LEUKEMIA

**MILD TO GRADUALLY INCREASING ANAEMIA IS SEEN**

**THERE IS A MODERATE AMOUNT OF LEUKOCYTOSIS**

**95% OF THE CELLS ARE LYMPHOCYTES  
PREDOMINANTLY OF SMALL CELL TYPE**

**THE FOCI OF MITOTICALLY ACTIVE  
PROLYMPHOCYTES ARE CALLED AS  
PROLIFERATION CENTRES WHICH IS A THE  
DIAGNOSTIC FEATURE OF CHRONIC  
LYMPHOCYTIC LEUKEMIA**



# **MULTIPLE MYELOMA**

**OCCURS IN THE 6TH DECADE**

**PREPONDERANT IN MALES**

**PATIENTS PRESENT WITH LOW BACK ACHE**

**ABNORMALLY ELEVATED ESR COUNT IS SEEN**

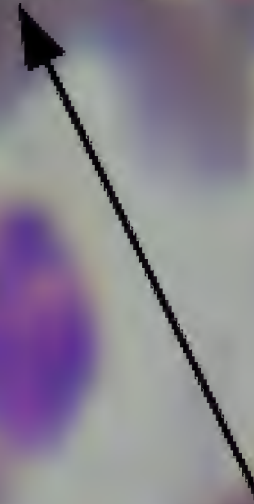
**PROTIENURIA IS PRESENT**

**XRAY OF SKULL REVEALS  
PUNCHED OUT LESIONS**

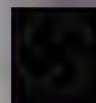
**PERIPHERAL SMEAR IS DONE**



INCREASED COUNT OF  
PLASMA CELLS



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# **MULTIPLE MYELOMA**

**MULTIPLE MYELOMA CAUSES DESTRUCTIVE BONE LESIONS**

**MICROSCOPICALLY THERE IS AN INCREASE OF PLASMA CELLS**

**THE NEOPLASTIC PLASMA CELLS RESEMBLE NORMAL MATURE PLASMA CELLS**

**THESE CELLS SHOW ABNORMAL FEATURES SUCH AS PROMINENT NUCLEOLI, ABNORMAL CYTOPLASMIC INCLUSIONS WHICH CONTAIN IMMUNOGLOBULIN**



# SECTION - 4

## HISTOPATHOLOGY GROSS SPECIMENS



# LIST OF GROSS SPECIMENS

**ACUTE APPENDICITIS**

**MUCINOUS CYSTADENOMA OF  
OVARY**

**DERMOID CYST**

**LEIOMYOMA**

**RENAL CELL CARCINOMA**

**OSTEOSARCOMA**



# LIST OF GROSS SPECIMENS

**OSTEOCLASTOMA**  
**TUBERCULOSIS OF LUNG**  
**INTESTINAL POLYPS**  
**CIRRHOSIS OF LIVER**  
**SECONDARIES OF LIVER**  
**CARCINOMA OF BREAST**

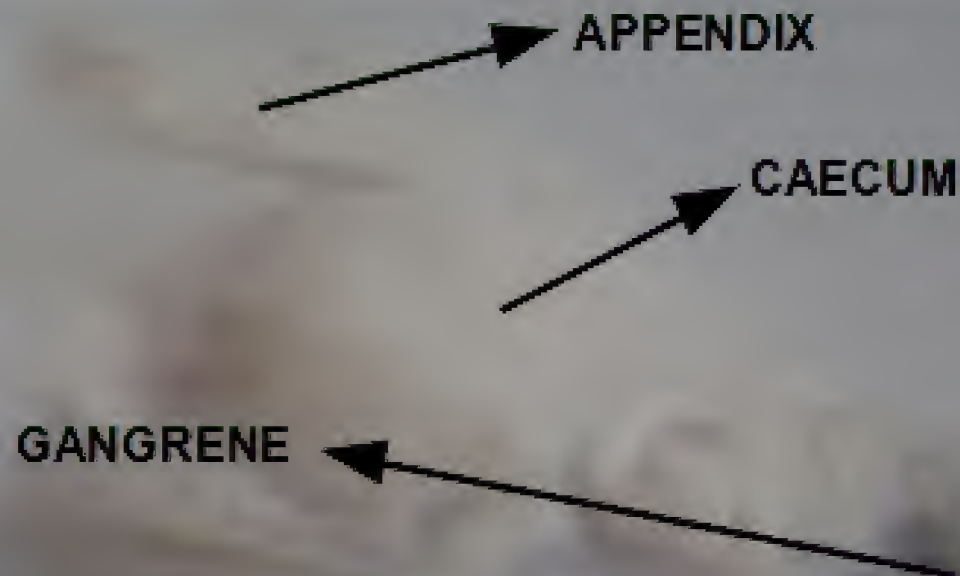


# LIST OF GROSS SPECIMENS

**MULTINODULAR GOITRE**  
**SQUAMOUS CELL CARCINOMA**  
**OF FOOT**  
**CARCINOMA OF STOMACH**  
**CHOLELITHIASIS**  
**RENAL CALCULI**  
**TRICHOBEZOAR**



# ACUTE APPENDICITIS



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# **ACUTE APPENDICITIS**

**THE ORGAN APPEARS TURGID  
AND DUSKY RED DUE TO  
INFLAMMATION AND  
HAEMORRHAGES IN THE MUCOUS  
MEMBRANE**

**IN ADVANCED CASES IT MIGHT  
APPEAR DARKISH GREEN TO  
BLACK BECAUSE OF  
GANGRENOUS CHANGE**

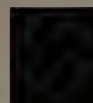


# MUCINOUS CYSTADENOMA OF OVARY

CYST CAVITY



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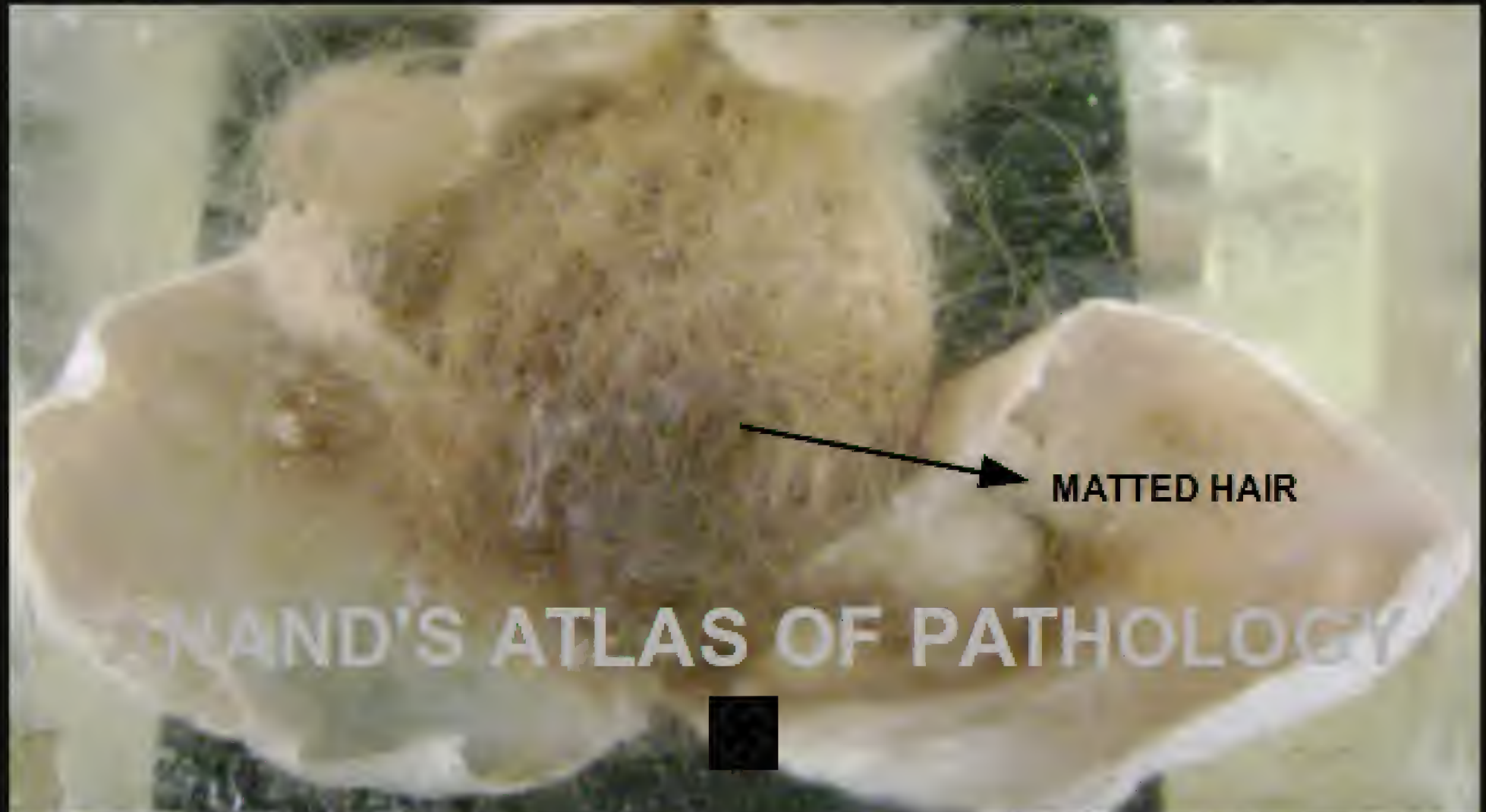


# **MUCINOUS CYSTADENOMA OF OVARY**

**USUALLY A BENIGN TUMOUR**  
**RARELY UNDERGOES MALIGNANT**  
**CHANGE**  
**CYST CAVITIES ARE SEEN**  
**DELICATE PAPILLARY TUMOUR**  
**GROWTHS CAN BE SEEN IN THE**  
**PERIPHERY**



# DERMOID CYST





# DERMOID CYST

**AFFECTED ORGAN IS OVARY**

**THESE NEOPLASMS ARE CAUSED BY  
ECTODERMAL DIFFERENTIATION OF  
TOTIPOTENT GERM CELLS**

**MATTED HAIR BEARING EPITHELIAL  
LINING IS SEEN**

**SOMETIMES IT CAN HAVE NODULAR  
PROJECTIONS FROM WHICH TEETH  
CAN PROTRUDE**



# LEIOMYOMA OF UTERUS



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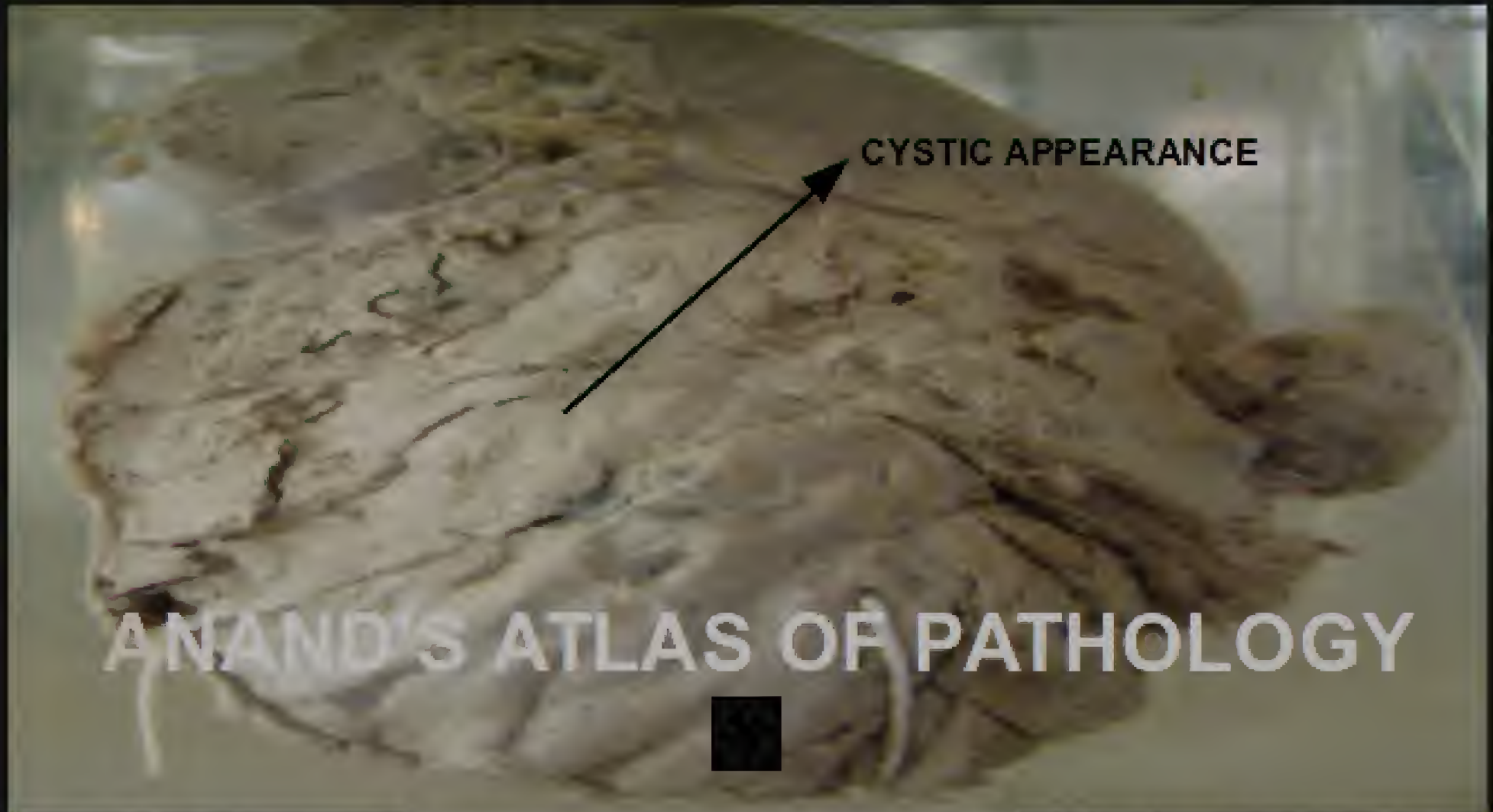


# **LEIOMYOMA OF UTERUS**

**TUMOUR IS A SHARPLY  
CIRCUMSCRIBED FIRM  
GRAY MASS  
PRESENTS A  
CHARACTERISTIC  
WHORLED CUT SURFACE**



# RENAL CELL CARCINOMA





# RENAL CELL CARCINOMA

**KIDNEY IS USUALLY SOLITARY AND  
LARGE**

**TUMOUR GROWTH IS USUALLY  
CONFINED TO THE CORTEX**

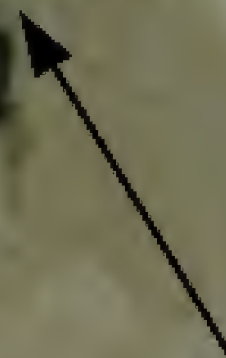
**PROMINENT AREAS OF CYSTIC  
SOFTENING OR HAEMORRHAGE ARE  
SEEN**

**THE MARGINS OF THE TUMOUR ARE  
WELL DEFINED**



# OSTEOSARCOMA

DESTRUCTION OF CORTEX



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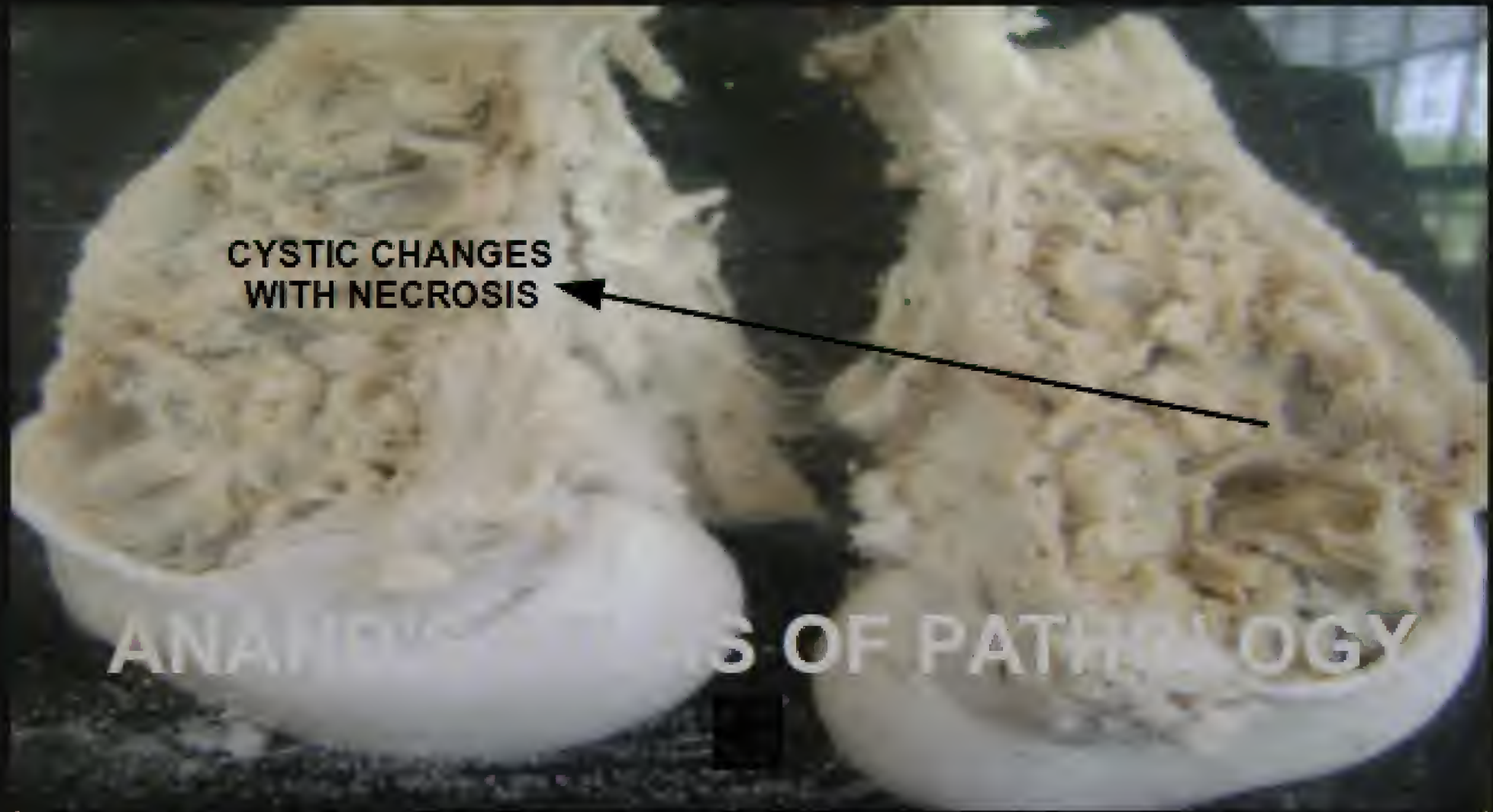


# OSTEOSARCOMA

**IT IS A LARGE ILL DEFINED LESION  
IN THE METAPHYSEAL REGION OF  
THE AFFECTED BONE  
TUMOUR HAS DESTROYED THE  
CORTEX AND INVADED INTO THE  
MARROW CAVITY AND OUTWARD  
INTO ADJACENT SOFT TISSUES**



# OSTEOCLASTOMA





# OSTEOCLASTOMA

**USUALLY ENDS OF LONG BONE ARE  
AFFECTED  
TUMOUR IS ALWAYS SOLITARY  
TUMOUR ERODES INTO THE CORTEX AND  
MAY EXTEND OUTSIDE THROUGH THE  
OVERLYING PERIOSTEUM  
PRESENTS A DARK BROWN APPEARANCE  
DUE TO ABUNDANT VASCULARITY  
AREAS OF NECROSIS AND CYSTIC CHANGES  
ARE SEEN**



# TUBERCULOSIS OF LUNG





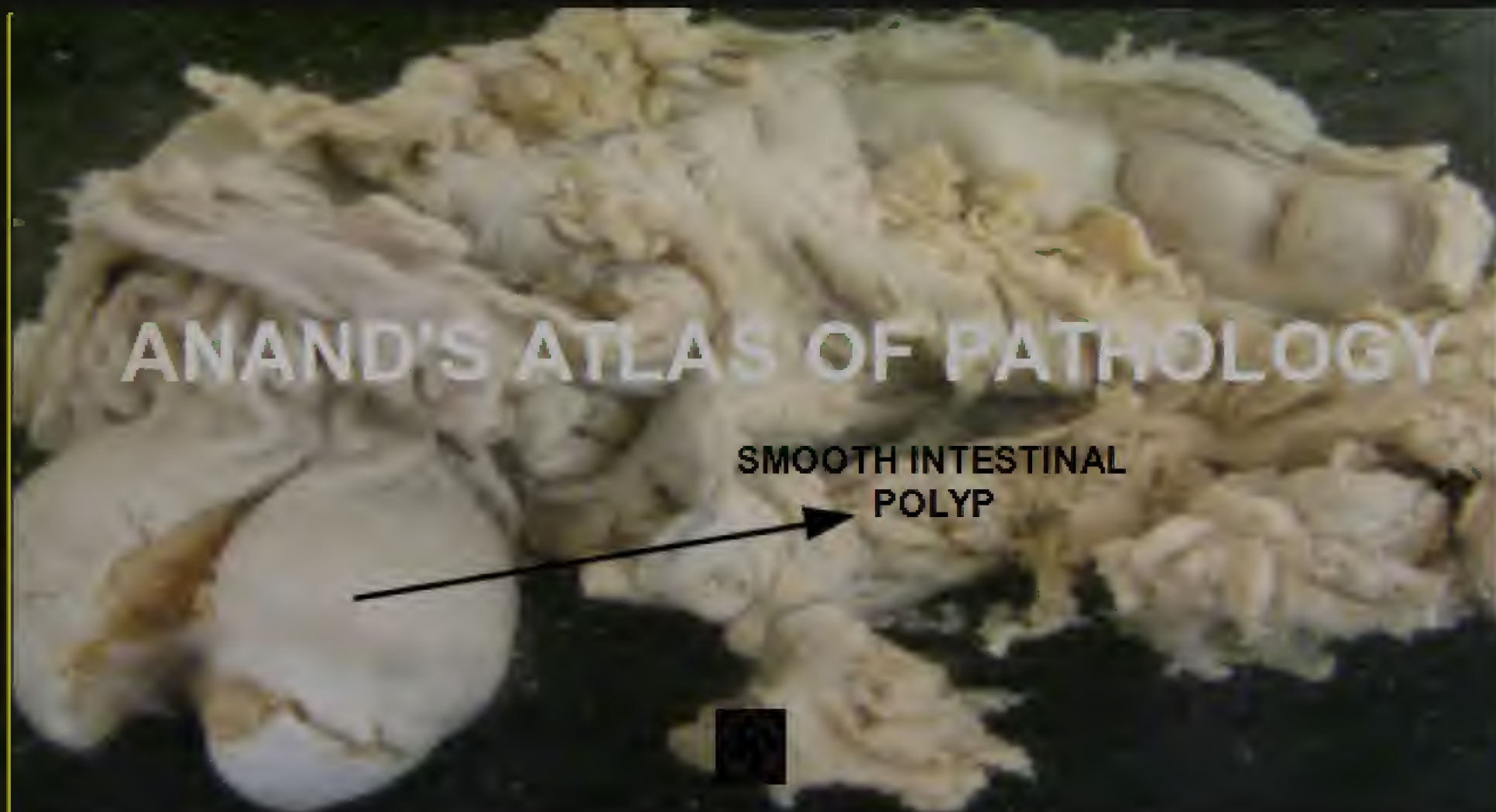
# **TUBERCULOSIS OF LUNG**

**LUNGS ARE RIDDLED WITH  
GRAY WHITE AREAS OF  
CASEATION**

**MULTIPLE AREAS OF  
SOFTENING AND CAVITATION  
ARE SEEN**



# INTESTINAL POLYPS



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SMOOTH INTESTINAL  
POLYP

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# **INTESTINAL POLYPS**

**MULTIPLE HEMISPHERICAL  
SMOOTH PROTRUSIONS  
ARE SEEN ON THE MUCOSA  
THEY ARE NIPPLE LIKE  
USUALLY AFFECTS THE  
RECTOSIGMOID JUNCTION**



# CIRRHOSIS OF LIVER





# **CIRRHOSIS OF LIVER**

**SPECIMEN OF LIVER  
SHOWING IRREGULARLY  
SIZED NODULES  
PUNCTUATING THE SURFACE  
OF THE LIVER  
THE NODULES ARE  
SEPARATED BY SCAR TISSUE**



# SECONDARIES - LIVER





# **SECONDARIES - LIVER**

**WELL ROUNDED GROWTHS OF VARYING SIZES SEEN ON THE SURFACE OF THE LIVER**  
**POSSIBLE PRIMARY SITES OF MALIGNANCY**  
**IS BY HAEMATogenous ROUTE FROM**  
**ABDOMINAL ORGANS AS ALL PORTAL**  
**BLOOD IS DRAINED INTO THE LIVER**  
**COMMONEST SITES OF METASTATIC**  
**SECONDARIES INTO THE LIVER ARE FROM**  
**COLON, LUNGS AND BREAST**



# CARCINOMA OF BREAST

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NECROTIC TUMOUR  
TISSUE



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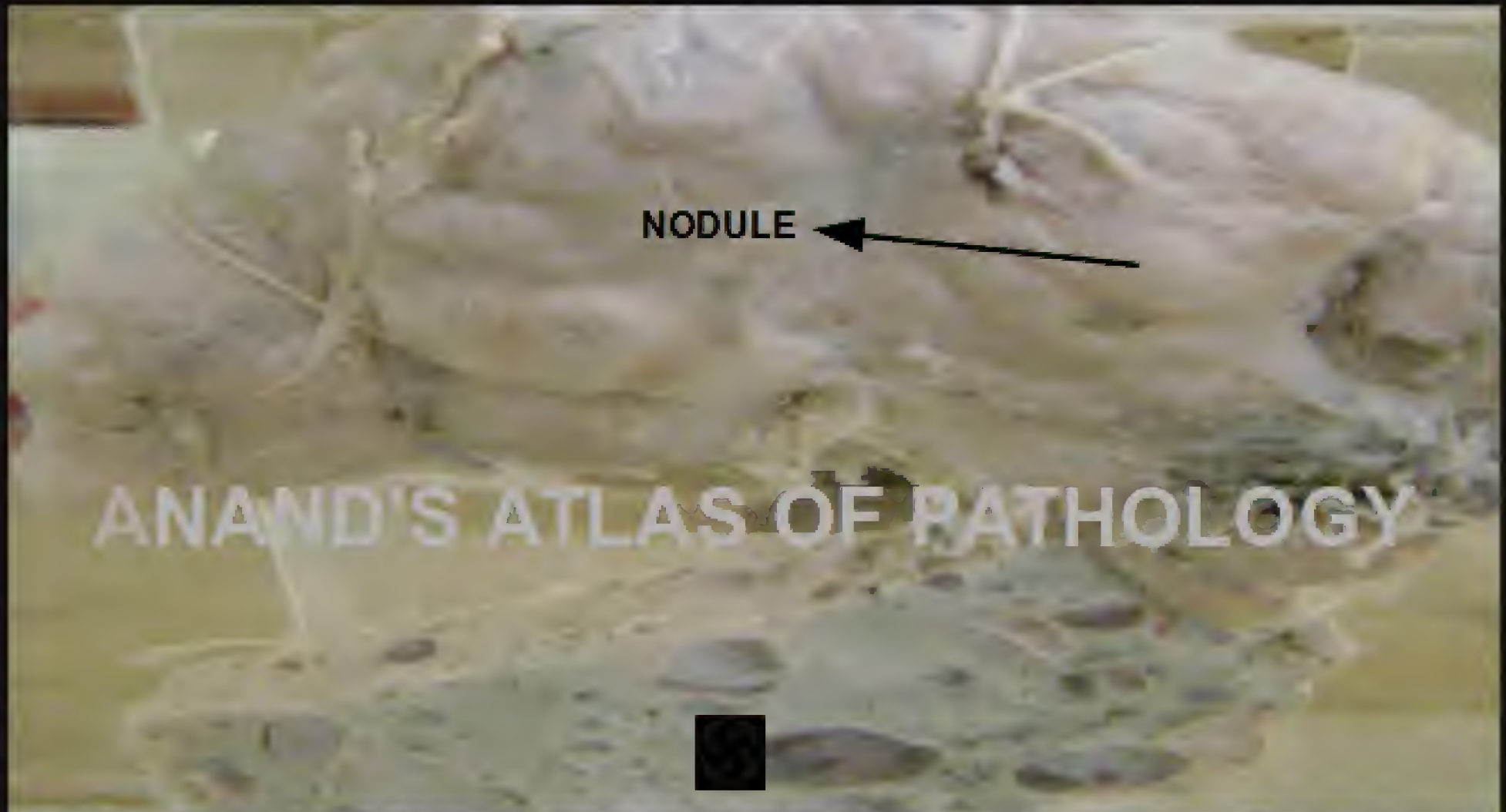


# CARCINOMA OF BREAST

**DUE TO DESMOPLASTIC RESPONSE,  
NORMAL BREAST FAT IS REPLACED  
AND FORMS A HARD PALPABLE MASS  
DIMPLING OF SKIN IS SEEN  
RETRACTION OF NIPPLE IS SEEN  
FIXITY TO CHEST WALL IS SEEN IN  
INVASIVE CARCINOMA**



# MULTINODULAR GOITRE





# MULTINODULAR GOITRE

**THYROID GLAND IS IRREGULARLY ENLARGED**

**MULTIPLE IRREGULARLY PLACED NODULES OF VARYING SIZES AND SHAPE ARE SEEN**

**THE GLAND APPEARS COARSE AND AREAS OF FIBROSIS AND CYSTIC CHANGES ARE SEEN**



# SQUAMOUS CELL CARCINOMA OF FOOT





# **SQUAMOUS CELL CARCINOMA OF FOOT**

**ARISES COMMONLY FROM SUNLIGHT  
EXPOSED SURFACES  
FOOT IS A COMMON SITE  
OLD BURNS SCAR IS A PREDISPOSING  
FACTOR  
LESIONS ARE NODULAR, THE GROWTH  
IS LIKE THAT OF A CAULIFLOWER**



# CARCINOMA OF STOMACH





# CARCINOMA OF STOMACH

**PYLORUS AND ANTRUM ARE THE COMMONLY AFFECTED SITES**  
**THERE IS PROTRUSION OF TUMOUR MASS INTO THE LUMEN**  
**IN EXCAVATED TYPE, A SHALLOW OR DEEPLY EROSIVE CRATER IS SEEN**



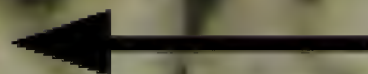
# CHOLELITHIASIS

INFLAMMED MUCOSA  
OF GALL BLADDER



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CALCULI



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# CHOLELITHIASIS

**THE GALL BLADDER MUCOSA IS IRREGULAR  
DUE TO CHRONIC INFLAMMATION**

**MECHANICAL MANIPULATION OF GALL  
BLADDER CAUSES FRAGMENTATION OF GALL  
STONES**

**CALCULI ARE USUALLY CHOLESTEROL  
STONES**

**CHOLESTEROL STONES ARE USUALLY  
YELLOW, MULTIPLE AND HAVE FACETED  
SURFACES**

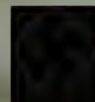


# RENAL CALCULI

RENAL CALCULI



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# RENAL CALCULI

**ALSO CALLED AS UROLITHIASIS**

**RENAL CALCULI ARE USUALLY UNILATERAL**

**COMMONEST SITES OF CALCULI ARE**

**RENAL PELVIS AND CALYCES**

**MANY STONES ARE FOUND**

**STAGHORN CALCULI IS DUE TO**

**PROGRESSIVE ACCUMULATION OF SALTS**

**MASSIVE STONES ARE USUALLY COMPOSED**

**OF MAGNESIUM AMMONIUM PHOSPHATE**



# TRICHOBEZOAR





# TRICHOBEZOAR

**TRICHOBEZOAR OCCURS ALMOST  
EXCLUSIVELY IN FEMALES**

**80% OF THE PATIENTS SUFFER  
FROM PSYCHIATRIC DISORDERS**

**TRICHOBEZOAR RESULTS FROM  
INGESTION OF HAIR**

**PATHOLOGICALLY IT GIVES RISE TO  
GASTRODUODENAL ULCERATION**





THANK YOU



# Anand's Atlas of Pathology

Web version 1.0

2015